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FORTRAN 4 PROGRAMMING LANGUAGE. (U)
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1 OF 4
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036 500



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National Technical Information Service

AD-A036 500

FORTRAN 4 PROGRAMMING LANGUAGE

DEFENSE DOCUMENTATION CENTER
ALEXANDRIA, VIRGINIA

FEBRUARY 1977

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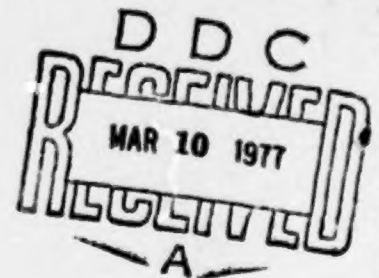
FORTRAN 4 PROGRAMMING LANGUAGE

A DDC BIBLIOGRAPHY

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Cameron Station
Alexandria, Va. 22314**

FEBRUARY 1977

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*Bibliographies	Computer Programs											
*Fortran 4 Programming Language	Subroutines											
*Programming Languages	Test and Evaluation											
Data Processing	Computer Program Reliability											
Computer Programming	Programming Manuals											
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) > This bibliography contains selected unclassified and unlimited citations on Fortran 4 Programming Language. These citations are studies and analyses pertaining to performance effectiveness, capability, evaluation, and reliability test. Indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are included.												

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FOREWORD

This bibliography consists of 311 selected unclassified and unlimited citations on *Fortran 4 Programming Language*.

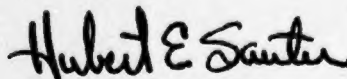
These citations provide information emphasizing design, development, performance capability and studies and tests of reliability.

Citations were taken from entries processed into the Defense Documentation Center's data bank during the period of January 1953 to September 1976.

Individual entries are arranged in AD number sequence under the heading AD Bibliographic References. Computer generated indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are included.

BY ORDER OF THE DIRECTOR, DEFENSE SUPPLY AGENCY

OFFICIAL



HUBERT E. SAUTER
Administrator
Defense Documentation Center

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TITLE.	T-1
PERSONAL AUTHOR.	P-1

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 740 434 1/3 9/2
AIR FORCE FLIGHT DYNAMICS LAB WRIGHT-PATTERSON AFB
OHIO

A HYBRID COMPUTER PROGRAM TO COMPUTER
SIMULATE A PILOT CONTROLLED AIRCRAFT.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.:

JAN 72 101P HOUTZ, JOHN :

REPT. NO. AFFDL-TR-71-71

PROJ: AF-8222

TASK: R22202

UNCLASSIFIED REPORT

DESCRIPTORS: (*FLIGHT SIMULATORS, *COMPUTER PROGRAMS),
FLIGHT CONTROL SYSTEMS, PILOTS, REAL TIME, DIGITAL
COMPUTERS, SIMULATION

(U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE:

HYBRID SIMULATION

(U)

A DIGITAL COMPUTER PROGRAM THAT IS USED TO COMPUTER
SIMULATE A PILOT CONTROLLED AIRCRAFT IS DESCRIBED.
THE PROGRAM IS SPECIFICALLY ORIENTED FOR USE ON AN
EAI 8400 HYBRID COMPUTING SYSTEM THAT IS
OPERATED BY THE CONTROL SYSTEMS DEVELOPMENT
BRANCH (FGL), AIR FORCE FLIGHT DYNAMICS
LABORATORY (AFFDL), AIR FORCE SYSTEMS
COMMAND (AFSC), WRIGHT-PATTERSON AIR
FORCE BASE, OHIO. THE PROGRAM IS WRITTEN IN
FORTRAN 4 COMPUTER LANGUAGE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 743 934 4/2

NORTHEASTERN UNIV BOSTON MASS DEPT OF MATHEMATICS

CERTAIN FINITE DIFFERENCE METHODS FOR THE
SOLUTION OF LARGE SCALE CIRCULATION
PROBLEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 DEC 68-20 NOV 71,
JAN 72 60P KLEIN, ROBERT D. HETTAUER,
JACK C. MAGLIONE, VITO P. SPIEGEL, STANLEY
L. I

CONTRACT: F19628-69-C-0001

PROJ: AF-8604, AF-8628

TASK: 860404, 862809

MONITOR: AFRL 72-0155

UNCLASSIFIED REPORT

DESCRIPTORS: (*ATMOSPHERIC MOTION, MATHEMATICAL MODELS),
EQUATIONS OF MOTION, DIFFERENCE EQUATIONS, COMPUTER
PROGRAMS, PARTIAL DIFFERENTIAL EQUATIONS, NUMERICAL
INTEGRATION, NUMERICAL ANALYSIS (U)

IDENTIFIERS: *ATMOSPHERIC CIRCULATION, FINITE
DIFFERENCE THEORY, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

PROGRAM ENVIRONMENTS SUITABLE FOR THE INVESTIGATION
OF A LARGE NUMBER OF DIFFERENT GRID SYSTEMS AND
ALGORITHMS RELEVANT FOR THE SOLUTION OF LARGE SCALE
METEOROLOGICAL CIRCULATION PROBLEMS ARE PRESENTED.
ONE OF THEM EMPLOYS A MIXED GRID SYSTEM TO SOLVE
THE BAROTROPIC PROBLEM. INCONSISTENCIES ARISING
FROM LINEAR INTERPOLATION BETWEEN THE GRIDS FOLLOWED
BY NUMERICAL DIFFERENTIATION ARE EXAMINED. ALSO, A
SPHERICAL GRID SYSTEM WITH FLEXIBILITY OF DEFINITION
ON THE GLOBE IS DESCRIBED AND THE RELATIONSHIP
NECESSARY FOR ITS USE IN A FINITE DIFFERENCING SCHEME
ARE DEVELOPED. ADDITIONALLY, A PROGRAM IS PRESENTED
WHICH IS USEFUL FOR CALCULATING THE PARAMETERS NEEDED
FOR THE NUMERICAL EVALUATION OF ARBITRARY
DIFFERENTIAL OPERATORS USING INFORMATION FROM
ARBITRARILY SELECTED GRID POINTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 744 802 12/2 12/1
ARMY WEAPONS COMMAND ROCK ISLAND ILL SYSTEMS ANALYSIS
DIV

THE NUMERICAL SOLUTION OF TRANSIENT
QUEUEING PROBLEMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 72 127P OLSON, STUART W. ;
REPT. NO. PAA-TRI-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: (•QUEUEING THEORY, MATHEMATICAL MODELS),
MATRICES(MATHEMATICS), PARTIAL DIFFERENTIAL EQUATIONS,
BESSEL FUNCTIONS, POWER SERIES, COMPUTER PROGRAMS,
MATHEMATICAL LOGIC, NUMERICAL ANALYSIS, DIFFERENCE
EQUATIONS, NUMERICAL INTEGRATION, THESES (U)
IDENTIFIERS: M/M/I QUEUE, RUNGE-KUTTA METHOD, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE REPORT EXPLORES METHODS FOR OBTAINING TRANSIENT
SOLUTIONS TO QUEUEING PROBLEMS WHICH CAN BE
REPRESENTED IN THE FORM OF DIFFERENTIAL-DIFFERENCE
EQUATIONS. SIX DISTINCT METHODS, REPRESENTING THE
MOST FREQUENTLY-ENCOUNTERED IN THE OPEN LITERATURE,
ARE DISCUSSED AS TO THEIR VALUE IN NUMERICAL WORK.
THE METHOD OF RUNGE-KUTTA INTEGRATION OF THESE
EQUATIONS WAS FOUND TO BE SUPERIOR TO THE NUMERICAL
EVALUATION OF ANALYTIC SOLUTIONS OF A PARTICULAR
QUEUEING MODEL. A GENERALIZED, RUNGE-KUTTA
PROGRAMMING PACKAGE, WRITTEN IN FORTRAN IV FOR THE
IBM 360/65, IS PRESENTED AND DESCRIBED IN DETAIL
FOR USE ON QUEUEING PROBLEMS. GENERALITY IS
ACHIEVED BY REQUIRING THE USER TO WRITE A SUBROUTINE
TO EVALUATE HIS QUEUEING EQUATIONS WHEN REQUIRED BY
THE PROGRAMMING PACKAGE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 744 963 5/2

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

THE APPA-RDC-T/MRDC COMPUTER
LABORATORY.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 69-JUN 71,
JUN 71 95P BEELER, RICHARD G. ;
REPT. NO. SDC-TM-L-4635/000/01
CONTRACT: DAAH01-69-C-1812, ARPA ORDER-1427

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, LANGUAGE), (*THAILAND,
MACHINE TRANSLATION), COMPUTER PROGRAMMING, VOCABULARY,
TIME SHARING, TELETYPE SYSTEMS, MANPOWER, INPUT OUTPUT
DEVICES (U)

IDENTIFIERS: ASSEMBLY LANGUAGES, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, *THAI LANGUAGE, CONSOLES (U)

THE PRINCIPAL FOCUS OF THE PROJECT HAS BEEN THE
PRODUCTION OF A TIME-SHARING SYSTEM TO DEMONSTRATE
THE POTENTIAL OF INTERACTIVE COMPUTING IN THE THAI
ENVIRONMENT. IN ADDITION TO THE PRODUCTION OF THE
RESOURCE-SHARING SYSTEM, ACTIVITIES INCLUDED THE
DEVELOPMENT OF A SYSTEM FOR THAI TRANSLITERATION,
OPERATION OF THE COMPUTER AND ITS ASSOCIATED *SERVICE
BUREAU, * PRODUCTION OF UTILITY PROGRAMS, AND
PRODUCTION AND MAINTENANCE OF HARDWARE AND SOFTWARE
FOR ATTACHING THE VARIOUS CONSOLES. THE SYSTEM OF
THAI TRANSLITERATION WAS DEVELOPED TO DETERMINE THE
EXTENT TO WHICH TRANSLITERATION CAN BE PERFORMED BY A
COMPUTER, GIVEN ONLY A THAI WORD AS INPUT. THE WORK
WAS DIVIDED INTO ORTHOGRAPHIC RESEARCH AND COMPUTER
PROGRAMMING. PROBLEMS OF MAINTAINING THE COMPUTER,
TRAINING OPERATORS, AND HANDLING DOCUMENTS WERE
SOLVED BY METHODS STANDARD IN THE UNITED STATES,
ALTHOUGH THE THAI ENVIRONMENT REQUIRED MORE
PERSONAL ATTENTION TO USERS' PROBLEMS AND
CONSIDERABLY MORE TIME IN TEACHING. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 745 757 9/5
SCHJELDAHL (G T) CO NORTHFIELD MINN

FEASIBILITY STUDIES OF MULTISPECTRAL MOSAIC
IMAGE CONVERSION PANELS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB 71-31 JAN 72,
MAR 72 127P ANDERSON, DONALD E. ISWISHER,
RICHARD L. ;
CONTRACT: N00014-71-C-0188
PROJ: NR-215-165

UNCLASSIFIED REPORT

DESCRIPTORS: (*SCREENS(DISPLAYS), ELECTROLUMINESCENCE),
(*IMAGE CONVERTERS, FEASIBILITY STUDIES), MOSAICS(LIGHT
SENSITIVE), INFRARED IMAGES, ULTRAVIOLET RADIATION, X
RAYS, LIGHT, PHOTOELECTRIC MATERIALS, COMPUTER PROGRAMS,
ELECTRICAL PROPERTIES, OPTICAL PROPERTIES (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IMINT COMPUTER PROGRAM, IR COMPUTER PROGRAM, THICK
FILMS, THIN FILMS, COMPUTERIZED SIMULATION,
*ELECTROLUMINESCENCE, *PANELS (U)

A DEVELOPMENT PROGRAM IS DESCRIBED IN WHICH THE
FEASIBILITY OF MOSAIC EL/PC IMAGE CONVERSION
PANELS SENSITIVE TO UV, NEAR IR, X-RAYS, AND
VISIBLE LIGHT WAS STUDIED. THIN FILM
PHOTOCONDUCTORS ARE ELECTRODED IN A REGULAR ARRAY
WITH UNIT CELLS 0.020 INCHES ON CENTERS. THESE
ARRAYS ARE CONNECTED TO OPAQUE ELECTRODE ARRAYS
FORMING THE BACK PAIDS OF AN ELECTROLUMINESCENT (EL)
LAMP ARRAY THROUGH THE USE OF MICROGLASS SPACER
SHEETS. BOTH THICK FILM EL AND THIN FILM
(TFEL) LAMP ARRAYS WERE PREPARED AND STUDIED.
THE COMBINATIONS OF MATERIALS USED WERE PREPARED IN
TEST SAMPLE FORM, ELECTRICALLY AND OPTICALLY
PARAMETERIZED, AND THEN COMPUTER SIMULATIONS WERE
PERFORMED TO DETERMINE THE RANGE OF PARAMETERS NEEDED
FOR A SUCCESSFUL ASSEMBLY. THE COMPUTER MODELS
SIMULATE THE TRANSIENT OR STEADY STATE OPTICAL
STIMULATION OF EL/PC CELLS WITH SIMPLE SINUSOIDAL
POWER APPLIED OR MORE COMPLICATED WAVE-FORMS. ALL
COMPUTER PROGRAMS USED ARE DOCUMENTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 745 758 9/5
SCHJEI DAHL (G T) CO NORTHFIELD MINN

FEASIBILITY STUDIES OF GRAY SCALE IMAGE
STORAGE WITH ELECTROLUMINESCENT/PHOTOCONDUCTOR
IMAGE CONVERSION PANELS. (U)

DESCRIPTIVE NOTES: FINAL REPT. 2 MAR 71-1 MAR 72,
MAR 72 119P ANDERSON, DONALD E. ISWISHER,
RICHARD L. ;
CONTRACT: N00014-71-C-0276
PROJ: NR-215-181

UNCLASSIFIED REPORT

DESCRIPTORS: (•SCREENS(DISPLAYS), ELECTROLUMINESCENCE),
(•IMAGE CONVERTERS, FEASIBILITY STUDIES), MOSAICS(LIGHT
SENSITIVE), PHOTOELECTRIC MATERIALS, COMPUTER PROGRAMS,
ELECTRICAL PROPERTIES, OPTICAL PROPERTIES (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IMINT COMPUTER PROGRAM, IK COMPUTER PROGRAM, THICK
FILMS, THIN FILMS, COMPUTERIZED SIMULATION,
•ELECTROLUMINESCENCE, •PANELS (U)

A STUDY PROGRAM IS DESCRIBED IN WHICH THE
FEASIBILITY OF ACHIEVING LEVELS OF GRAY SCALE IMAGE
STORAGE IN EL/PC IMAGE STORAGE PANELS IS STUDIED.
BOTH THICK FILM EL AND THIN FILM EL LAMP ARRAYS
WERE PREPARED AND STUDIED. EFFORT WAS CONCENTRATED
ON TWO TECHNIQUES: SLOW DECAYING THIN FILM
PHOTOCONDUCTORS AND MULTIFREQUENCY ELECTRICAL DRIVING
OF FAST RESPONSE EL/PC PANELS. THE COMBINATION
OF MATERIALS USED WERE PREPARED IN TEST SAMPLE FORM,
ELECTRICALLY AND OPTICALLY PARAMETERIZED, AND THEN
COMPUTER SIMULATIONS WERE PERFORMED TO DETERMINE THE
RANGE OF PARAMETERS NEEDED FOR A SUCCESSFUL ASSEMBLY.
THE COMPUTER MODELS SIMULATED THE TRANSIENT OR
STEADY STATE OPTICAL STIMULATION OF EL/PC CELLS
WITH SIMPLE SINUSOIDAL POWER APPLIED OR MORE
COMPLICATED WAVEFORMS. (AUTHOR) (U)

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AD- 746 484 13/10 20/4
LAROCK (BRUCE E) DAVIS CALIF

TRANSVERSE GRAVITY EFFECTS ON A FULLY
CAVITATING HYDROFOIL RUNNING BELOW A FREE
SURFACE.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. DEC 71-JUL 72,
JUL 72 73P LAROCK, BRUCE E. ;
REPT. NO. TR-7201
CONTRACT: N00014-72-C-0109
PROJ: SR009-01-01

UNCLASSIFIED REPORT

DESCRIPTORS: (HYDROFOILS, FLUID DYNAMICS), CAVITATION,
LIFT, DRAG, WAKE, GRAVITY, MATHEMATICAL MODELS, COMPUTER
PROGRAMS (U)
IDENTIFIERS: COMPUTER AIDED ANALYSIS, FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE (U)

EQUATIONS ARE PRESENTED WHICH DESCRIBE THE FULLY
CAVITATING FLOW OF FLUID PAST A FLAT PLATE HYDROFOIL
RUNNING BELOW A FREE SURFACE. TRANSVERSE GRAVITY
FIELD EFFECTS ARE INCLUDED IN THE ANALYSIS. THE
EQUATIONS ARE DEVELOPED BY THE USE OF COMPLEX
FUNCTION THEORY AND TULIN'S DOUBLE-SPIRAL-VORTEX
CAVITY MODEL. TWO FORTRAN 4 COMPUTER PROGRAMS
HAVE BEEN DEVELOPED TO EVALUATE THE EQUATIONS.
FEATURES AND USE OF THESE PROGRAMS ARE DISCUSSED,
AND PROGRAM LISTINGS ARE PRESENTED IN THE APPENDIX.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 746 611 20/12 7/4
WASHINGTON STATE UNIV PULLMAN DEPT OF PHYSICS

EQUATION OF STATE OF SOLIDS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 72 177P DUVALL, GEORGE E. ITUNG, C.
T. ; DANDEKAR, D. P. ; ANDREWS, D. J. ;
REPT. NO. WSU-SOL-71-01
CONTRACT: DA-04-200-AMC-17021X1
MONITOR: BRL CM-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-714 307.

DESCRIPTORS: (SOLIDS, EQUATIONS OF STATE), (PHASE
STUDIES, EQUATIONS OF STATE), (IRON, EQUATIONS OF
STATE), MATHEMATICAL MODELS, COMPUTER PROGRAMS,
THERMODYNAMICS, DIFFUSION, HEAT TRANSFER, WAVE
PROPAGATION, SHOCK WAVES, THERMAL EXPANSION

(U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

THE REPORT DESCRIBES A PROGRAM FOR COMPUTING
EQUATION OF STATE PARAMETERS FOR A MATERIAL WHICH
UNDERGOES A PHASE TRANSITION, EITHER RATE-DEPENDENT
OR REVERSIBLE. THE FORTRAN PROGRAM IS DESCRIBED
IN DETAIL AND A SAMPLE CALCULATION IS MADE FOR IRON.
A MODIFICATION IS DESCRIBED WHICH MAKES IT POSSIBLE
TO COMPUTE THE HANFFACTION SHOCK ARISING FROM A PHASE
TRANSITION. THIS TOO IS COMPUTED FOR IRON WITH AND
WITHOUT RATE-DEPENDENCE IN THE TRANSITION. NEXT, A
FORTRAN PROGRAM IS DESCRIBED FOR DERIVING
CRYSTALLINE ELASTIC CONSTANTS FROM SONIC MEASUREMENTS
AT HIGH PRESSURE; IT IS CAPABLE OF OBTAINING EXPLICIT
TEMPERATURE DEPENDENCE IF MEASUREMENTS ARE MADE AT
THREE TEMPERATURES. IT IS APPLIED TO DATA FROM
CALCITE. FINALLY A THEORETICAL EQUATION OF STATE
IS DESCRIBED FOR SOLID IRON. (AUTHOR)

(U)

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DDC REPORT HIRLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 749 582 20/4
LOCKHEED MISSILES AND SPACE CO INC SUNNYVALE, CALIF

EXPERIMENTAL AND ANALYTICAL INVESTIGATION OF
TEMPERATURE SENSITIVE PAINTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 71-MAR 72,
JUN 72 104P SCHULTZ, HOWARD D. ;
CONTRACT: F33615-71-C-1635
PROJ: AF-1366
TASK: 136607
MONITOR: AFFDL TR-72-52

UNCLASSIFIED REPORT

DESCRIPTORS: (AERODYNAMIC HEATING, MEASUREMENT),
TEMPERATURE, COMPUTER PROGRAMS, WIND TUNNEL MODELS, HEAT
TRANSFER, SHOCK WAVES, BOUNDARY LAYER, FLOW FIELDS,
REENTRY VEHICLES (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
MEASUREMENT, TEMPERATURE, TEMPERATURE SENSITIVE
COATINGS, DATA REDUCTION (U)

THE REPORT PRESENTS THE RESULTS OF A STUDY WHICH
CONSISTED TO TWO PRINCIPAL PHASES: AN ANALYTICAL
INVESTIGATION TO EXTEND THE VALIDITY OF THE
TEMPERATURE-SENSITIVE COATING TECHNIQUE FOR
AERODYNAMIC HEATING MEASUREMENT TO AREAS IN WHICH
KNOWN THEORIES DO NOT APPLY; AND A COMBINED
ANALYTICAL AND EXPERIMENTAL STUDY TO DEVELOP METHODS
OF PREDICTING AREAS OF HIGH THERMAL GRADIENTS IN AN
INTERFERING FLOW FIELD. TWO DATA REDUCTION COMPUTER
PROGRAMS WERE DEVELOPED TO TREAT THE GENERAL TWO-
DIMENSIONAL CASE OF A FINITE-SLAB CONVECTIVELY HEATED
ON ONE OR BOTH SIDES. THESE PROGRAMS PROVIDE AN
INVERSE SOLUTION TO THE TWO-DIMENSIONAL TRANSIENT
HEAT CONDUCTION EQUATION WITH SURFACE HEATING
GRADIENTS AND VARIABLE THERMAL PROPERTIES. A THREE-
DIMENSIONAL SHOCK INTERFERENCE WIND TUNNEL MODEL WAS
DESIGNED FABRICATED AND TESTED. BY USE OF THE
TEMPERATURE-SENSITIVE COATING TECHNIQUE, HEATING
DISTRIBUTIONS IN THE INTERACTION REGION HAVE BEEN
IDENTIFIED IN GREATER DETAIL THAN IS POSSIBLE BY USE
OF THERMOCOUPLE-INSTRUMENTED MODELS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 750 694 5/9 17/1
NAVAL TRAINING EQUIPMENT CENTER ORLANDO FLA

ANALYSIS OF UNDERWATER ACOUSTIC PROPAGATION
LOSS MATH MODELS IN CURRENT TRAINING
DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 72 46P MEYER, E. F. ;
REPT. NO. NAVTRAEQUIPCEN-1H-200
PROJ: NAVTRADEVEN-71-3047

UNCLASSIFIED REPORT

DESCRIPTORS: (TRAINING DEVICES, SONAR PERSONNEL),
(UNDERWATER SOUND, ATTENUATION), SCATTERING,
MATHEMATICAL MODELS, SOUND TRANSMISSION, COMPUTER
PROGRAMS (U)

IDENTIFIERS: AN/SQS-24, RAY TRACING, SIGMA 7
COMPUTERS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE REPORT ANALYZES AND COMPARES THE VARIOUS
SIMULATION DESIGNS AND MATH MODELS OF UNDERWATER
ACOUSTIC SIMULATION PRESENTLY BEING USED IN CURRENT
TRAINING DEVICES DEVELOPED BY THE NAVAL TRAINING
DEVICE CENTER. THE ANALYSIS CONTAINS MODEL
SIMPLIFICATIONS AND THEIR EFFECTS ON ACOUSTIC
PROPAGATION LOSS. THE RESULTS OF THESE MODELS ARE
COMPARED WITH THE RESULTS OF THE RAY TRACE MODEL
DEVELOPED BY THE NAVAL AIR DEVELOPMENT
CENTER. (AUTHOR) (U)

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AD- 751 214 9/2 18/3 19/4
BRADDOCK DUNN AND McDONALD INC MCLEAN VA

TWOBY3 AND ASSOCIATED CODES: IBM/360/91
VERSION (USER'S MANUAL).

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-JUL 72.
JUL 72 115P JONES, DAVID L. I
REPT. NO. ADM/W-FR72-125
CONTRACT: DAAG39-71-C-009U
PROJ: DASA-MER-TA-038, HDL-27327

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTER PROGRAMMING, INSTRUCTION
MANUALS), (NUCLEAR EXPLOSIONS, SHOCK WAVES), EQUATIONS
OF STATE, HYDRODYNAMICS, PROPAGATION, ELASTIC
PROPERTIES, PLASTIC PROPERTIES (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IBM 360/91 COMPUTERS (U)

THE REPORT IS DESIGNED AS A USER'S MANUAL FOR
FORTRAN COMPUTER PROGRAMS TWOBY3, LIB2D,
PLT2D3, AND PLOT2D. PROGRAM TWOBY3 IS A
CODE FOR COMPUTING THE SOLUTION TO WAVE PROPAGATION
PROBLEMS IN TWO DIMENSIONS. PROGRAM LIB2D SETS
UP AND MAINTAINS A LIBRARY OF EQUATION OF STATE
PARAMETERS USED BY TWOBY3. PROGRAM PLT2D3 IS
A DATA EDITING AND PLOTTING ROUTINE WHICH PRODUCES
PRINTER PLOTS OF THE OUTPUT FROM TWOBY3. PROGRAM
PLOT2D IS A DATA EDITING AND PLOTTING ROUTINE
WHICH PRODUCES CALCUMP PLOTS OF THE OUTPUT FROM
TWOBY3. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 462 7/4 21/2
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE
STATION TENN

AN EFFICIENT NUMERICAL METHOD FOR STIRRED
REACTOR CALCULATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JAN-AUG 71,
NOV 72 56P OSGEMAY, I. T. I
REPT. NO. AEDC-TR-72-164
CONTRACT: F40600-73-C-0004
PROJ: AF-9711, ARD-RW5108
MONITOR: AFOSR TR-72-0910

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARD,
INC., TULLAHOMA, TENN. REPT. NO. ARD-ETF-TR-
72-95.

DESCRIPTORS: (*COMBUSTION, *REACTION KINETICS),
(*COMBUSTION CHAMBERS, REACTION KINETICS), ENTHALPY,
CONCENTRATION(CHEMISTRY), CHEMICAL ENGINEERING, METHANE,
EQUATIONS OF STATE, PARTIAL DIFFERENTIAL EQUATIONS,
COMPUTER PROGRAMS, CURVE FITTING, GAS TURBINES,
NUMERICAL ANALYSIS (U)
IDENTIFIERS: NONLINEAR ALGEBRAIC EQUATIONS, *CHEMICAL
REACTORS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
STIRRED REACTORS (U)

AN EFFICIENT METHOD IS PRESENTED FOR CALCULATING
CHEMICAL COMPOSITION IN A PERFECTLY STIRRED REACTOR
AT A GIVEN PRESSURE, STOICHIOMETRY, AND MASS FLOW PER
UNIT VOLUME. EITHER TEMPERATURE OR ENTHALPY MAY BE
PRESCRIBED AS THE ADDITIONAL CONDITION FOR THE
COMPUTATIONS. BY EMPLOYING LINEARIZATION
TECHNIQUES, THE NONLINEAR EQUATIONS OF DETAILED
FINITE RATE CHEMICAL KINETIC SCHEMES ARE REDUCED TO A
SYSTEM OF ALGEBRAIC EQUATIONS WHICH ARE SOLVED
ITERATIVELY. NO DIFFICULTIES ARE EXPERIENCED IN
OBTAINING CONVERGED SOLUTIONS USING THE TECHNIQUES
DESCRIBED IN THE REPORT. A COMPUTER PROGRAM IS
PRESENTED FOR SOLUTION OF PROBLEMS WITH ARBITRARY
FUEL/OXIDANT COMBINATIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 751 505 1974 15/7
HONEYWELL INC MINNEAPOLIS MINN SYSTEMS AND RESEARCH
DIV

DEVELOPMENT OF WEAPON DELIVERY MODELS AND
ANALYSIS PROGRAMS. VOLUME 1. SYSTEM
MODELING AND PERFORMANCE OPTIMIZATION. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 5 OCT 70-5 OCT
71.

APR 72 206P KUNAH, A. FERIT ;
REPT. NO. 12261-FRI-VOL-1
CONTRACT: F33615-71-C-1059
PROJ: AF-8219
TASK: A21911
MONITOR: AFFDL TH-71-123-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-751 506.

DESCRIPTORS: (CLOSE SUPPORT, MATHEMATICAL MODELS),
(BOMB TRAJECTORIES, CIRCULAR ERROR PROBABLE),
(AIRCRAFT GUNS, EFFECTIVENESS), COMPUTER PROGRAMMING,
ROCKETS, FLIGHT CONTROL SYSTEMS, GUST LOADS, EQUATIONS
OF MOTION, MISS DISTANCE, WEAPON SYSTEMS, PARTIAL
DIFFERENTIAL EQUATIONS, PERTURBATION THEORY, WHITE
NOISE, NUMERICAL ANALYSIS (U)
IDENTIFIERS: ADAP COMPUTER PROGRAM, AUTOMATIC,
CONTROL, BOMB RELEASE POINT, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, CONTROL THEORY (U)

THE CONCERN IN THE WORK REPORTED IS THE DEVELOPMENT
OF A DYNAMIC PRECISION WEAPON DELIVERY SYSTEM MODEL
FOR ANALYZING THE EFFECTS OF SYSTEM PARAMETERS AND
DISTURBANCES ON DELIVERY PERFORMANCE. IN ADDITION,
A METHODOLOGY OF PRECISION WEAPON DELIVERY FLIGHT
CONTROL DESIGN IS DEVELOPED, WITHOUT CONSIDERING THE
PILOT AS A CONTROL ELEMENT. THE AIRCRAFT MODEL
ACCOMMODATES A WIDE VARIETY OF AIRFRAME NONLINEAR
DYNAMICS, CONTROL POINTS AND METHODS AND MEASUREMENT
SYSTEMS. THE BOMB MODEL IS GENERAL ENOUGH FOR A
VARIETY OF DIVE-BOMB ANGLES, RELEASE ALTITUDES AND
RELEASE SPEEDS. THE CIRCULAR ERROR PROBABLE
(CEP) AT IMPACT IS CHOSEN AS A MEASURE OF WEAPON
DELIVERY PERFORMANCE, AND A TECHNIQUE IS DEVELOPED
FOR RELATING THE EFFECTS OF FLIGHT CONTROL
PARAMETERS, AIRFRAME DYNAMICS, MEASUREMENT ERRORS AND
GUST DISTURBANCES TO THIS MEASURE BY USING THE SYSTEM
MODEL. DEMONSTRATION ANALYSIS IS PERFORMED TO SHOW
HOW TO IDENTIFY CRITICAL SYSTEM PARAMETERS WITH
REGARD TO THE DELIVERY OF AN IRON BOMB (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 506 1974 15/7
HONEYWELL INC MINNEAPOLIS MINN SYSTEMS AND RESEARCH
DIV

DEVELOPMENT OF WEAPON DELIVERY MODELS AND
ANALYSIS PROGRAMS. VOLUME II.
DOCUMENTATION OF THE ARMAMENT DELIVERY
ANALYSIS PROGRAMMING SYSTEM (ADAPS).

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 5 OCT 70-5 OCT
71.

APR 72 315P KONAN, A. FERIT INARD,
MICHAEL D. ;
REPT. NO. 12261-FRI-VOL-2
CONTRACT: F33615-71-C-1059
PROJ: AF-8219
TASK: A21904
MONITOR: AFFDL TR-71-123-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-751 505.

DESCRIPTORS: (•CLOSE SUPPORT, MATHEMATICAL MODELS),
(•BOMB TRAJECTORIES, CIRCULAR ERROR PROBABLE),
(•AIRCRAFT GUNS, EFFECTIVENESS), COMPUTER PROGRAMS,
ROCKETS, FLIGHT CONTROL SYSTEMS, GUST LOADS, MISS
DISTANCE, WEAPON SYSTEMS, EQUATIONS OF MOTION, PARTIAL
DIFFERENTIAL EQUATIONS, PERTURBATION THEORY, WHITE
NOISE, NUMERICAL ANALYSIS

(U)

IDENTIFIERS: ADAP COMPUTER PROGRAM, AUTOMATIC,
CONTROL, BOMB RELEASE POINT, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, CONTROL THEORY

(U)

THE COMPUTER PROGRAMS WHICH IMPLEMENT THE
MATHEMATICAL ANALYSIS AND MODELS DEVELOPED IN
VOLUME I (AD-751 505) ARE DESCRIBED. THE
PROGRAMS ARE DEVELOPED IN FORTRAN 4 LANGUAGE.
EXTENSIVE USE OF SUBROUTINES IS MADE TO PROVIDE
PROGRAMMING FLEXIBILITY WHEN CONSIDERING ALTERNATE
AIRFRAME/DYNAMICS/CONTROL POINTS/ MEASUREMENT SYSTEM
COMBINATIONS AND THEIR EFFECT ON WEAPON-DELIVERY
PERFORMANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 518 9/1 9/2 18/8
IBM FEDERAL SYSTEMS DIV WAGO N Y ELECTRONICS SYSTEMS
CENTER

SCEPTRE SUPPORT II. VOLUME 1. REVISED
USER'S MANUAL (SUPPLEMENT).

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 APR 70-1 JUL 72.
SEP 72 60P SLODKE, STEPHEN H. ; WRIGHT,
ALLEN I. ;

CONTRACT: F29601-70-C-0038

PROJ: AF-5710

MONITOR: AFWL TR-69-77-VOL-1-SUPPL

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPPLEMENT TO AD-882 384.

DESCRIPTORS: (*INTEGRATED CIRCUITS, *DAMAGE), (*COMPUTER
PROGRAMMING, INSTRUCTION MANUALS), NUCLEAR RADIATION,
TRANSIENTS, MATHEMATICAL MODELS, CORRECTIONS,
(U)CORRECTIONS (U)

IDENTIFIERS: SCEPTRE COMPUTER PROGRAM, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, IBM 7094 COMPUTERS,
IBM 360 COMPUTERS, *TRANSIENT RADIATION
EFFECTS(ELECTRONICS), EQUIVALENT CIRCUITS (U)

THE REPORT IS INTENDED TO SERVE AS A SUPPLEMENT TO
THE SCEPTRE USER'S MANUAL, AFWL-TR-69-77,
VOLUME 1, AND ALSO AS A FINAL REPORT FOR
CONTRACT F29601-70-C-0038. THE CONTENT OF
SECTION 2 SHOULD BE CONSIDERED AS ADDITIONS TO THE
EXISTING MANUAL, WHILE SECTION 3 CONTAINS INFORMATION
TO REPLACE CITED PORTIONS OF THE MANUAL. THE
REMAINDER IS THE FINAL REPORT THAT DESCRIBES IN
DETAIL THE IMPROVEMENTS TO THE PROGRAM THAT WERE
ADDED DURING THE CONTRACT PERIOD. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 527 1974 15/7
HONEYWELL INC MINNEAPOLIS MINN SYSTEMS AND RESEARCH
DIV

DEVELOPMENT OF WEAPON DELIVERY MODELS AND
ANALYSIS PROGRAMS. VOLUME III. TESTING AND
DEMONSTRATION OF THE ARMAMENT DELIVERY
ANALYSIS PROGRAMMING SYSTEM (ADAPS).

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 5 OCT 70-5 OCT
71.

APR 72 194P KONAK, A. FERIT IWARD,
MICHAEL D. ;
REPT. NO. 12261-FRI-VOL-3
CONTRACT: F33615-71-C-1059
PROJ: AF-8219
TASK: R21904
MONITOR: AFFDL TR-71-123-VOL-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*CLOSE SUPPORT, MATHEMATICAL MODELS),
(*BOMB TRAJECTORIES, CIRCULAR ERROR PROBABLE),
EFFECTIVENESS, COMPUTER PROGRAMS, FLIGHT CONTROL
SYSTEMS, GUST LOADS, EQUATIONS OF MOTION, MISS DISTANCE,
WEAPON SYSTEMS, PARTIAL DIFFERENTIAL EQUATIONS,
PERTURBATION THEORY, WHITE NOISE, NUMERICAL ANALYSIS (U)
IDENTIFIERS: M-117 BOMBS(750-LB), ADAP COMPUTER
PROGRAM, AUTOMATIC, CONTROL, BOMB RELEASE POINT,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, F-4 AIRCRAFT,
CONTROL THEORY (U)

THE TESTING AND USE OF ADAPS IS DEMONSTRATED BY
PERFORMING AN ANALYSIS WITH A SPECIFIED IRON BOMB
(M117) AND A REPRESENTATIVE TACTICAL FIGHTER-
BOMBER AIRCRAFT (F4). THE DEMONSTRATION
EXAMPLE REVEALED NO APPRECIABLE PERFORMANCE
DIFFERENCE BETWEEN THE TIME-INVARIANT AND TIME-
INVARIANT AND TIME-VARYING OPTIMAL CONTROLLERS FOR
THE WEAPON DELIVERY PROCESS. THE CONTRIBUTION
MATRIX OF AN IRON BOMB INDICATED THAT THE MAJOR
CONTRIBUTORS TO THE CEP ARE THE VELOCITY AND THE
ATTITUDE-STATE ERRORS AT RELEASE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 932 1/5 9/2
CONSA, RESEARCH CORP PITTSBURGH PA

A COMMUNITY/AIRPORT ECONOMIC DEVELOPMENT
MODEL. VOLUME IV. PROGRAMMERS' MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. APR 71-MAY 72.

MAY 72 52P HINKLE, JERE J. ;

CONTRACT: DOT-FA71W4-4565

MONITOR: FAA-EQ 72-3-VOL-4

UNCLASSIFIED REPORT

AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.

DESCRIPTORS: (AIRPORTS, ECONOMICS), COMPUTER
PROGRAMMING, INSTRUCTION MANUALS, URBAN PLANNING

(U)

IDENTIFIERS: CAEDM COMPUTER PROGRAM, PROGRAMMING
MANUALS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, LAND
USE, ECONOMIC MODELS

(U)

THE VOLUME SHOWS SAMPLE OUTPUT OF THE CAEDM.
THE DETAILED PROGRAM LISTING IS PROVIDED IN
VOLUME 3, APPENDIX E. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 975 4/7
PRC INFORMATION SCIENCES CO MCLEAN VA

TECHNICAL INTELLIGENCE GRAPHICS FOR FTD. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 71-JUN 72,
OCT 72 42P JONES, RICHARD L. ; BELL,
PAUL D. ; GRADLANOFF, GERALD J. ;
REPT. NO. PRC-R-1610
CONTRACT: F30602-71-C-0333
MONITOR: RADC TR-72-261

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, GRAPHICS),
COMPILERS, INPUT OUTPUT DEVICES (U)
IDENTIFIERS: MINICOMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, HIS 635 COMPUTERS, COMPUTERS,
GRAPHICS, INTERACTIONS, COMPUTERS, GRAPHICS (U)

THE OBJECTIVE OF THE TECHNICAL INTELLIGENCE
GRAPHICS FOR FTD PROJECT WAS TO DEVELOP AN
INTERACTIVE GRAPHICS SUPPORT CAPABILITY USING A MINI-
COMPUTER/CRT DISPLAY TERMINAL INTERFACED TO A LARGE
SCALE CENTRAL PROCESSOR. SOFTWARE DEVELOPMENT
EFFORTS INCLUDED CONVERSION AND MODIFICATION OF
EXISTING GRAPHICS SYSTEMS FOR EXECUTION ON THE LARGE
SCALE PROCESSOR AND DEVELOPMENT OF NEW SOFTWARE TO
EXECUTE ON THE MINI-COMPUTER/CRT DISPLAY TERMINAL.
THE FINAL TECHNICAL REPORT DESCRIBES SOFTWARE
STATUS WITH CONCLUSIONS AND RECOMMENDATIONS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 141 4/2 8/3
VIRGINIA INST OF MARINE SCIENCE GLOUCESTER POINT

FORECASTING STORM-INDUCED BEACH CHANGES
ALONG VIRGINIA'S OCEAN COAST.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 71 117P HARRISON, WYMAN; BULLOCK, PAUL
A. ; PORE, N. A. ;
REPT. NO. CONTRIB-451
CONTRACT: DACW72-69-C-0031

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
NATIONAL WEATHER SERVICE, SILVER SPRING, MD.

DESCRIPTORS: (*STORMS, WEATHER FORECASTING), (*BEACHES,
EROSION), REGRESSION ANALYSIS, CORRELATION TECHNIQUES,
MATHEMATICAL PREDICTION, COMPUTER PROGRAMS, VIRGINIA (U)
IDENTIFIERS: *BEACH EROSION, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, IBM 1130 COMPUTERS, STORM
SURGES

(U)

THE PURPOSE OF THIS STUDY WAS TO BEGIN WORK ON A
METHOD FOR OPERATIONAL PREDICTION OF STORM-INDUCED
BEACH CHANGES. THE THOUGHT WAS TO USE WIND AND
STORM-SURGE DATA THAT ARE PREDICTED ON A ROUTINE
BASIS BY THE NATIONAL WEATHER SERVICE, NOAA,
AND IT WAS FELT THAT IF SUCH A PROCEDURE COULD BE
DEVELOPED, IT WOULD BE POSSIBLE TO PROVIDE ESTIMATES
OF BEACH EROSION OR DEPOSITION AS PART OF ROUTINE
WEATHER FORECASTS WHENEVER STORMS THREATENED. IT
WAS ALSO HOPED THAT IT MIGHT BE POSSIBLE TO MAKE
ESTIMATES OF SHORELINE EROSION DURING PREVIOUS YEARS
BY USING HISTORICAL STORM DATA IN THE PREDICTION
SCHEME.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 153 13/2
WATER RESOURCES ENGINEERS INC SPRINGFIELD VA

A METHODOLOGY FOR ASSESSING ECONOMIC RISK
OF WATER SUPPLY SHORTAGES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 72 163P YOUNG, G. K. ; TAYLOR, R.
S. ; HANKS, J. J. ;
CONTRACT: DACW31-71-C-0046
MONITOR: IWR 72-6

UNCLASSIFIED REPORT

DESCRIPTORS: (WATER SUPPLIES, ECONOMICS), (URBAN
PLANNING, WATER SUPPLIES), HYDROLOGY, INDUSTRIES,
SIMULATION, PROBABILITY, MATHEMATICAL MODELS, COMPUTER
PROGRAMS, PENNSYLVANIA, QUESTIONNAIRES (U)
IDENTIFIERS: WATER CONSUMPTION, PDP 10 COMPUTERS,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DROUGHT (U)

THE REPORT DEVELOPS A PROCEDURE FOR ESTIMATING
INCOME LOSSES, TO A DEFINED REGION, ASSOCIATED WITH
VARYING DEGREES OF WATER SHORTAGE RESULTING IN A
FREQUENCY-LOSS FUNCTION. AN EMPIRICAL LIST OF THE
PROCEDURE WAS DEVELOPED FOR THE YORK,
PENNSYLVANIA WATER SERVICE AREA, WHICH
EXPERIENCED A SUBSTANTIAL WATER SHORTAGE IN 1966.
STUDY OF COMMUNITY RESPONSE TO ACTUAL OR POTENTIAL
DROUGHT REVEALS A NUMBER OF DIFFERENT PERSPECTIVES -
THE WATER MANAGER, RESIDENTIAL, COMMERCIAL AND
INDUSTRIAL USERS AND GOVERNMENT. THIS STUDY OPENS
THE WAY TO AN ALTERNATIVE METHOD OF ASSESSING THE
BENEFITS FOR ADEQUATE MUNICIPAL WATER SUPPLIES; IT
DISTINGUISHES BETWEEN SHORT-RUN AND LONG-RUN PLANS;
AND THE ROLE WHICH EACH PLAYS IN RESOURCE PLANNING.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 468 13/10 9/2
OCEANICS INC PLAINVIEW N Y

PROGRAM SCORES - SHIP STRUCTURAL RESPONSE
IN WAVES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 72 69P RAFF, ALFRED I. ;
CONTRACT: N00024-70-C-5076
PROJ: SR-174
MONITOR: SSC 230

UNCLASSIFIED REPORT

DESCRIPTORS: (SHIP HULLS, STRUCTURAL PROPERTIES),
(COMPUTER PROGRAMS, INSTRUCTION MANUALS),
LOADS(FORCES), HYDRODYNAMICS, OCEAN WAVES, EQUATIONS OF
MOTION, MATHEMATICAL MODELS (U)
IDENTIFIERS: CDC 6600 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE (U)

INFORMATION NECESSARY FOR THE USE OF THE SCORES
DIGITAL COMPUTER PROGRAM IS GIVEN. THIS PROGRAM
CALCULATES BOTH THE VERTICAL AND LATERAL PLANE
MOTIONS AND APPLIED LOADS OF A SHIP IN WAVES.
STRIP THEORY IS USED AND EACH SHIP HULL CROSS-
SECTION IS ASSUMED TO BE OF LEWIS FORM FOR THE
PURPOSE OF CALCULATING HYDRODYNAMIC FORCES. THE
SHIP CAN BE AT ANY HEADING, RELATIVE TO THE WAVE
DIRECTION. BOTH REGULAR AND IRREGULAR WAVE RESULTS
CAN BE OBTAINED, INCLUDING SHORT CRESTED SEAS
(DIRECTIONAL WAVE SPECTRUM). ALL THREE PRIMARY
SHIP HULL LOADINGS ARE COMPUTED, I.E. VERTICAL
BENDING, LATERAL BENDING AND TORSIONAL MOMENTS. ALL
THE BASIC EQUATIONS USED IN THE ANALYSIS ARE GIVEN,
AS WELL AS A DESCRIPTION OF THE OVERALL PROGRAM
STRUCTURE. THE INPUT DATA REQUIREMENTS AND FORMAT
ARE SPECIFIED. SAMPLE INPUT AND OUTPUT ARE SHOWN.
THE APPENDICES INCLUDE A DESCRIPTION OF THE
FORTRAN PROGRAM ORGANIZATION, TOGETHER WITH
FLOWCHARTS AND A COMPLETE CROSS-REFERENCED LISTING OF
THE SOURCE LANGUAGE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 581 21/4 13/2 21/5
ESSO RESEARCH AND ENGINEERING CO LINDEN N J GOVERNMENT
RESEARCH LAB

FUEL MODIFICATION FOR ABATEMENT OF AIRCRAFT
TURBINE ENGINE OXIDES OF NITROGEN
EMISSIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 26 APR 71-31 MAY 72,
OCT 72 129P SHAW, HENRY ;
REPT. NO. GRU.IGDJA.72
CONTRACT: F33615-71-C-1575
PROJ: AF-3066
TASK: 306605
MONITOR: AFAPL TR-72-80

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT ENGINES, *EXHAUST GASES),
(*NITROGEN OXIDES, AIRCRAFT ENGINES), (*AIR POLLUTION,
NITROGEN OXIDES), (*FUEL ADDITIVES, *JET ENGINE FUELS),
CHELATE COMPOUNDS, COBALT COMPOUNDS, IRON COMPOUNDS,
MAGNESIUM COMPOUNDS, COPPER COMPOUNDS, MATHEMATICAL
MODELS, COMBUSTION, CONCENTRATION(CHEMISTRY), NUMERICAL
ANALYSIS, COLLOIDS, GAS TURBINES, GAS ANALYSIS (U)
IDENTIFIERS: ACETYLACETONATE COMPLEXES, *AIR
POLLUTION, *CONTROL, COMPUTER AIDED ANALYSIS, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE REPORT DESCRIBES A BROAD EXPERIMENTAL PROGRAM
THAT WAS UNDERTAKEN TO ASSESS THE FEASIBILITY OF
REDUCING NO(X) FROM AIRCRAFT GAS TURBINE ENGINES
BY FUEL MODIFICATION. THE ESSO HIGH PRESSURE
CANNULAR COMBUSTOR WAS USED TO SIMULATE THE
CHARACTERISTIC EMISSIONS OF GAS TURBINES AT FULL
POWER OPERATION. OVER 70 FUEL MODIFICATIONS WERE
TESTED USING JET A AS THE BASE FUEL. SOLUBLE
COMPOUNDS OF COBALT, IRON, MAGNESIUM, AND COPPER
REDUCE NO(X) BY AS MUCH AS 30% WHEN ADDED TO
THE FUEL AT A TREAT RATE OF UP TO 0.5% (W).
NONE OF THE INVESTIGATED ADDITIVES WERE FULLY
ACCEPTABLE BECAUSE OF THE RELATIVELY LOW NO(X)
REDUCTION THAT WAS OBTAINED EVEN WITH HIGH ADDITIVE
TREAT RATES. A SIMPLE EXPRESSION WAS DERIVED WHICH
IS USEFUL IN ESTIMATING NO LEVELS IN GAS TURBINE
COMBUSTORS WHEN EQUILIBRIUM NO(X) CONCENTRATIONS
AND TEMPERATURE ARE KNOWN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 627 1/5 9/2
CONSAN RESEARCH CORP PITTSBURGH PA

A COMMUNITY/AIRPORT ECONOMIC DEVELOPMENT
MODEL. VOLUME 1. GENERAL CONCEPT AND
APPLICATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 71-MAY 72,
MAY 72 91P HINKLE, JERE J. ;
CONTRACT: DOT-FA71WA-2565
MONITOR: FAA-EQ 72-3-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-751 932.

DESCRIPTORS: (*AIRPORTS, MATHEMATICAL MODELS), (*URBAN
PLANNING, *AIRPORTS), COMPUTER PROGRAMMING, INSTRUCTION
MANUALS, ECONOMICS, AIRPLANE ENGINE NOISE (U)
IDENTIFIERS: CAEDM COMPUTER PROGRAM, PROGRAMMING
MANUALS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, LAND
USE, ECONOMIC MODELS (U)

THE VOLUME PRESENTS A DESCRIPTION OF A COMMUNITY/
AIRPORT ECONOMIC DEVELOPMENT MODEL (CAEDM)
WHICH HAS BEEN DEVELOPED TO ASSIST IN THE LAND USE
PLANNING PROCESS IN THE VICINITY OF AIRPORTS IN
METROPOLITAN AREAS. THE MODEL IS A COMPUTERIZED
TECHNIQUE WHICH HAS TWO OBJECTIVES. THE FIRST IS TO
EXAMINE THE EXISTING OR PROJECTED LAND USE ACTIVITIES
IN THE VICINITY OF AN AIRPORT TO DETERMINE THEIR
COMPATIBILITY WITH AIRCRAFT GENERATED NOISE LEVELS
AND TO ESTIMATE THE ECONOMIC AND SOCIAL COSTS OF
ALTERNATIVE REMEDIAL ACTIONS THAT CAN BE TAKEN TO
RESOLVE THE INCOMPATIBILITIES. THE SECOND OBJECTIVE
OF THIS TECHNIQUE IS TO DETERMINE THE KIND AND
AMOUNTS OF LAND USE ACTIVITIES THAT CAN BE LOCATED IN
THE VICINITY OF THE AIRPORT THAT CAN UTILIZE THE
SERVICES AVAILABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 742 13/10 9/2
COM/COE CORP ALEXANDRIA VA

TANKER TRANSVERSE STRENGTH ANALYSIS
PROGRAMMER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 72 49P NIELSEN, R. ; CHANG, P. Y. ;
DESCHAMPS, L. C. ;
CONTRACT: N00024-70-C-5219
PROJ: CR196
MONITOR: SSC 22H

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHIP HULLS, STRUCTURAL PROPERTIES),
(*COMPUTER PROGRAMS, INSTRUCTION MANUALS), TANKERS,
CONTROL SEQUENCES (U)
IDENTIFIERS: CDC 6600 COMPUTERS, PROGRAMMING MANUALS,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, STRUCTURAL
ANALYSIS, UNIVAC 1108 COMPUTERS, COMPUTER AIDED
DESIGN (U)

THE REPORT, THE LAST IN A SEQUENCE OF FOUR SHIP
STRUCTURE COMMITTEE REPORTS ON A METHOD FOR
PERFORMING STRUCTURAL ANALYSIS OF A TANKER HULL,
CONTAINS THE PROGRAMMER'S MANUAL FOR THE
TRANSVERSE STRENGTH ANALYSIS PORTION OF THE PROGRAM.
THE FORTRAN 4 COMPUTER PROGRAM IS WRITTEN FOR USE
ON UNIVAC 1108 AND CDC 6600 COMPUTERS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 769 13/10 9/2
COM/COMDE CORP ALEXANDRIA VA

STRUCTURAL ANALYSIS OF LONGITUDINALLY FRAMED
SHIPS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 72 67P NIELSEN, R. ; CHANG, P. Y. ;
DESCHAMPS, L. C. ;
CONTRACT: N00024-70-C-5219
PROJ: 5R196
MONITOR: SSC 225

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHIP HULLS, STRUCTURAL PROPERTIES),
(*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), TANKERS,
LOADS(FORCES), FORCE(MECHANICS), STRESSES, BENDING,
BUCKLING, COMPUTER PROGRAMS (U)
IDENTIFIERS: CDC 6600 COMPUTERS, FINITE ELEMENT
ANALYSIS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
STRUCTURAL ANALYSIS, UNIVAC 1108 COMPUTERS, COMPUTER
AIDED DESIGN (U)

THE TECHNIQUE OF FINITE ELEMENTS HAS BROUGHT ABOUT
A NEW ERA TO THE FIELD OF STRUCTURAL ANALYSIS OF SHIP
STRUCTURES. THE APPLICATION OF THIS TECHNIQUE,
HOWEVER, IS LIMITED BY THE COST AND CAPACITY OF THE
COMPUTER. STRAIGHT FORWARD APPLICATIONS OF THE
FINITE ELEMENT METHOD TO THE WHOLE OR TO A MAJOR
PORTION OF THE SHIP HAVE SO FAR BEEN INACCURATE AND
TOO EXPENSIVE FOR DESIGN PURPOSES. THE METHOD
PRESENTED COMBINES THE ADVANTAGES OF THE FINITE
ELEMENT TECHNIQUE AND THE UNCOUPLING BY COORDINATE
TRANSFORMATION. A FINE MESH MAY NOW BE USED TO
PRODUCE MORE ACCURATE BOUNDARY CONDITIONS. THE
UNCOUPLING TRANSFORMATIONS ALSO REDUCE THE COMPUTER
TIME TO ABOUT ONE-TENTH OF THAT BY OTHER METHODS.
THE CRITICAL ASSUMPTIONS AND THE BASIC THEORIES
HAVE BEEN VERIFIED WITH EXPERIMENTAL TEST RESULTS
FROM THE TANKER 'JOHN A. MCCONE'. THREE
FORTRAN 4 COMPUTER PROGRAMS ARE DESCRIBED. THEY
HAVE BEEN WRITTEN FOR THE UNIVAC 1108 AND CDC
6600 COMPUTERS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 770 13/10 9/2
COM/CDDE CORP ALEXANDRIA VA

TANKER LONGITUDINAL STRENGTH ANALYSIS:
USER'S MANUAL AND COMPUTER PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 72 18P NIELSEN, R. ; CHANG, P. Y. ;
DESCHAMPS, L. C. ;
CONTRACT: N00024-70-C-5219
PROJ: SR196
MONITOR: SSC 226

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHIP HULLS, STRUCTURAL PROPERTIES),
(*COMPUTER PROGRAMS, INSTRUCTION MANUALS), TANKERS,
STRESSES, FORCE(MECHANICS) (U)
IDENTIFIERS: CDC 6600 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, UNIVAC 1108 COMPUTERS, COMPUTER
AIDED DESIGN (U)

THE REPORT, SECOND IN A SEQUENCE OF FOUR SHIP
STRUCTURE COMMITTEE REPORTS ON A METHOD FOR
PERFORMING STRUCTURAL ANALYSIS OF A TANKER HULL,
CONTAINS THE USER'S MANUAL AND COMPUTER
PROGRAM FOR THE LONGITUDINAL STRENGTH ANALYSIS
PORTION OF THE PROGRAM. THE PROGRAM IS WRITTEN IN
FORTRAN 4 FOR THE UNIVAC 1108 AND CDC 6600
COMPUTERS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 771 13/10 9/2
COM/COE CORP ALEXANDRIA VA

TANKER TRANSVERSE STRENGTH ANALYSIS:
USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 72 53P NIELSEN, R. ; CHANG, P. Y. ;
DESCHAMPS, L. C. ;
CONTRACT: N00024-70-C-5219
PROJ: SR-196
MONITOR: SSC 227

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHIP HULLS, STRUCTURAL PROPERTIES),
(*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), TANKERS,
LOADS(FORCES), STRESSES (U)
IDENTIFIERS: CDC 6600 COMPUTERS, FINITE ELEMENT
ANALYSIS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
STRUCTURAL ANALYSIS, UNIVAC 1108 COMPUTERS, COMPUTER
AIDED DESIGN (U)

THE REPORT, THE THIRD IN A SEQUENCE OF FOUR SHIP
STRUCTURE COMMITTEE REPORTS ON A METHOD FOR
PERFORMING STRUCTURAL ANALYSIS OF A TANKER HULL,
CONTAINS THE USER'S MANUAL FOR THE TRANSVERSE
STRENGTH ANALYSIS PORTION OF THE PROGRAM. THE
COMPUTER PROGRAM IS WRITTEN IN FORTRAN 4 FOR THE
UNIVAC 1108 AND CDC 6600 COMPUTERS.
(AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT AERIALOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 211 20/11 9/2
CALIFORNIA UNIV LOS ANGELES

FEATHER: FINITE ELEMENT ANALYSIS FOR THREE-
DIMENSIONAL ELASTIC RESPONSE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 69-JUN 72,
AUG 72 130P SELNA, L. G. ; SERPANOS, J.
E. ;

CONTRACT: N00123-69-C-1249

MONITOR: NWC, GIDEP

TP-5402,347.00.00.00-x7-

145

UNCLASSIFIED REPORT

DESCRIPTORS: (*STRUCTURES, STRESSES), (*STRESSES,
NUMERICAL ANALYSIS), (*COMPUTER PROGRAMMING, INSTRUCTION
MANUALS), ELASTIC PROPERTIES, MATRICES(MATHEMATICS),
LOADS(FORCES), BEAMS(STRUCTURAL), SHELLS(STRUCTURAL
FORMS), CYLINDRICAL BODIES, ROCKET ENGINES (U)

IDENTIFIERS: *FINITE ELEMENT ANALYSIS, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, *STRUCTURAL ANALYSIS,
UNIVAC 1108 COMPUTERS, DEGREES OF FREEDOM (U)

A DIGITAL COMPUTER PROGRAM FOR THREE-DIMENSIONAL
STRESS ANALYSIS OF COMPLEX STRUCTURES IS PRESENTED.
THE SOLUTION IS BASED ON THE FINITE ELEMENT
TECHNIQUE EMPLOYING A GENERAL 8-NODALPOINT ELEMENT
WITH 3 TRANSLATIONAL DEGREES OF FREEDOM PER NODAL
POINT. THE UNIVAC 1108 COMPUTER PROGRAM IS CODED
IN FORTRAN IV; THE PLOTTING CAPABILITIES ARE
DESIGNED FOR USE WITH THE SC-4060 SOFTWARE.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 628 15/1 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME I. MAIN REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 48P
CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-753 629.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE MAIN REPORT DESCRIBES THE WORK PERFORMED IN
RESPONSE TO USACDC WORK DIRECTIVE 2-72,
IMPROVEMENT OF THE WAR GAMING CAPABILITY
(WAGCAP). THE VOLUME SUMMARIZES THE PRINCIPAL
ACTIVITIES AND RESULTS OF THE WAGCAP PROJECT.
THE CHRONOLOGICAL DEVELOPMENT OF THE STUDY IS
DESCRIBED AND INTERRELATIONSHIPS OF THE VARIOUS
ELEMENTS OF THE PROJECT ARE PRESENTED. THE RESULTS
OF THE WAGCAP STUDY ARE IDENTIFIED AND CROSS-
REFERENCED, WHERE APPROPRIATE, TO OTHER MORE DETAILED
VOLUMES OF THE DOCUMENTATION SERIES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 629 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPACITY
(WAGCAP). VOLUME III. DIVWAG TECHNICAL
MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 464P
CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-753 628 AND
VOLUME 4, AD-753 630.

DESCRIPTORS: (•WAR GAMES, MATHEMATICAL MODELS), (•ARMY
OPERATIONS, COMPUTER PROGRAMMING), (•COMPUTER
PROGRAMMING, •INSTRUCTION MANUALS), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION (U)

IDENTIFIERS: WAGCAP (WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE VOLUME CONTAINS THE TECHNICAL DESCRIPTION OF
THE DIVWAG MODEL. THE MANUAL PRESENTS THE
DIVWAGS DESIGN CONCEPT, DESCRIBES THE MILITARY
REALITY SIMULATED, AND PROVIDES THE RATIONALE FOR THE
MODELING APPROACH. THE SOURCES OR DERIVATION OF
PARAMETERS, EQUATIONS, AND SUBMODELS ARE INCLUDED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 630 1577 972
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME IV. DIVWAG USERS MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 252P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-753 629 AND
VOLUME 5, PART 1, AD-753 631.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, COMPUTER PROGRAMMING), (*COMPUTER
PROGRAMMING, *INSTRUCTION MANUALS), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE VOLUME PROVIDES PROSPECTIVE USERS OF THE
DIVISION WAR GAME (DIVWAG) MODEL WITH THE
BACKGROUND, DESCRIPTION, PROCEDURES, AND TECHNIQUES
NECESSARY FOR UNDERSTANDING AND OPERATING THE MODEL
IN A DIVISION FORCE EVALUATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 753 631 15/1 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME V. DIVWAG PROGRAMMERS
MANUAL. PART 1. (U)

DESCRIPTIVE NOTE: FINAL REPT.
AUG 72 662P
PROJ: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-753 630 AND
VOLUME 5, PART 2, AD-753 632.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, COMPUTER PROGRAMMING), (*COMPUTER
PROGRAMMING, *INSTRUCTION MANUALS), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE VOLUME CONTAINS THE PROGRAM DESIGN
SPECIFICATIONS OF EACH DIVWAG PROCESSOR.
COMPILED LISTING, EDIT LISTINGS, AND LOADER
LISTINGS ARE INCLUDED. DESCRIPTIONS ARE PROVIDED
FOR COMMON, EACH FILE USED, PROGRAM DEBUGGING
GUIDELINES, OPTIONAL DIAGNOSTIC FORMATS, AND
INTERPRETATION OF THE DIAGNOSTICS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 632 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING
CAPABILITY(WAGCAPI). VOLUME V. DIVWAG
PROGRAMMERS MANUAL. PART 2. (U)

DESCRIPTIVE NOTE: FINAL REPT.
AUG 72 573P
CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, PART 1, AD-
753 631 AND VOLUME 5, PART 3, AD-753 633.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, COMPUTER PROGRAMMING), (*COMPUTER
PROGRAMMING, *INSTRUCTION MANUALS), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION (U)

IDENTIFIERS: WAGCAPI(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE VOLUME CONTAINS THE PROGRAM DESIGN
SPECIFICATIONS OF EACH DIVWAG PROCESSOR.
COMPILED LISTINGS, EDIT LISTINGS, AND LOADER
LISTINGS ARE INCLUDED. DESCRIPTIONS ARE PROVIDED
FOR COMMON, EACH FILE USED, PROGRAM DEBUGGING
GUIDELINES, OPTIONAL DIAGNOSTIC FORMATS, AND
INTERPRETATION OF THE DIAGNOSTICS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 633 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME V. DIVWAG PROGRAMMERS
MANUAL. PART 3.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 586P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, PART 2, AD-
753 632 AND VOLUME 6, AD-753 634.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, COMPUTER PROGRAMMING), (*COMPUTER
PROGRAMMING, *INSTRUCTION MANUALS), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION

(U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 634 15/7 9/2
GENERAL DYNAMICS SAN DIEGO CALIF CONVAIR AEROSPACE
DIV

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME VI. DIVWAG DATA
REQUIREMENTS DEFINITION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 570P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, PART 3, AD-
753 633 AND VOLUME 7, AD-753 635.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION

(U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM

(U)

THE VOLUME PROVIDES A DETAILED DESCRIPTION OF THE
CONSTANT DATA INPUT REQUIREMENTS FOR APPLICATION OF
THE DIVWAG MODEL. THE APPLICATIONS OF CONSTANT
DATA WITHIN THE MODEL ARE DESCRIBED, AND INSTRUCTIONS
ARE GIVEN FOR COMPLETING THE CARD FORMS ASSOCIATED
WITH CONSTANT DATA. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 635 15/1 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAP). VOLUME VII. WAGCAP TESTING
REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 407P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, AD-753 634 AND
VOLUME 8, AD-753 636.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, COMBAT READINESS, CLOSE
SUPPORT, MILITARY INTELLIGENCE, COMBAT SURVEILLANCE,
COUNTERMEASURES, ANTIMISSILE DEFENSE SYSTEMS,
ANTIAIRCRAFT DEFENSE SYSTEMS, SIMULATION (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM (U)

THE VOLUME DOCUMENTS THE TESTING CONDUCTED TO
EVALUATE AND DEMONSTRATE THE DIVWAG MODEL. THE
VALIDITY AND SENSITIVITY TESTING OF VARIOUS MODEL
ELEMENTS IS PRESENTED; THE PLAY OF THE WAGCAP
TEST GAME IS DESCRIBED; AND THE DIVISION FORCE IS
EVALUATED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT AIRLOGGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 753 636 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY
(WAGCAPI). VOLUME VII. DIVWAG TRAINING
PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 72 481P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

DESCRIPTORS: (•WAR GAMES, MATHEMATICAL MODELS), (•ARMY
OPERATIONS, COMPUTER PROGRAMMING), (•COMPUTER
PROGRAMMING, •ARMY TRAINING), GAME THEORY, MISSION
PROFILES, THREAT EVALUATION, AIRMOBILE OPERATIONS,
COMBAT SURVEILLANCE, COUNTERMEASURES, ANTIMISSILE
DEFENSE SYSTEMS, ANTIAIRCRAFT DEFENSE SYSTEMS,
SIMULATION

(U)

IDENTIFIERS: WAGCAPI(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, SCENARIOS, FORCE STRUCTURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, COMPUTERIZED
SIMULATION, DIVWAG COMPUTER PROGRAM

(U)

THE VOLUME PROVIDES THE PROGRAMS OF INSTRUCTION,
LESSON PLANS, AND TRAINING AIDS USED TO TRAIN
GOVERNMENT PERSONNEL IN DIVWAG MODEL OPERATING
TECHNIQUES AND PROCEDURES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 754 174 1/5 9/2
CONSAD RESEARCH CORP PITTSBURGH PA

A COMMUNITY/AIRPORT ECONOMIC DEVELOPMENT
MODEL. VOLUME III. USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. APR 71-MAY 72.
MAY 72 213P HINKLE, JERE J. :

CONTRACT: DOT-FA71WA-2565

MONITOR: FAA-EQ,CPG 72-3-VOL-3,73-0045

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-753 836 AND
VOLUME 4, AD-751 932.

DESCRIPTORS: (*AIRPORTS, MATHEMATICAL MODELS), (*URBAN
PLANNING, AIRPORTS), (*COMPUTER PROGRAMS, INSTRUCTION
MANUALS), ECONOMICS, SITE SELECTION, AIRPLANE ENGINE
NOISE

(U)

IDENTIFIERS: *NOISE POLLUTION, CAEDM COMPUTER PROGRAM,
PROGRAMMING MANUALS, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE, LAND USE, ECONOMIC MODELS

(U)

THE VOLUME PRESENTS A DESCRIPTION OF THE OPERATIONS
OF THE COMMUNITY/AIRPORT ECONOMIC DEVELOPMENT
MODEL (CAEDM). THESE CAN BE USED TO EXAMINE A
WIDE VARIETY OF PROBLEMS EXAMINING AIRCRAFT NOISE AND
LAND USE INCOMPATIBILITIES IN THE VICINITY OF AN
AIRPORT. INFORMATION IS GIVEN IN BOTH NARRATIVE AND
GRAPHIC FORM REGARDING THE KIND OF INPUT THAT IS
REQUIRED TO BE PROVIDED BY THE USER OF THE PROGRAM.
THE OPTIONS THAT ARE AVAILABLE WITHIN THE PROGRAM
AND THE FORMAT AND ORDERING OF THE DATA THAT ARE
REQUIRED FOR PROGRAM OPERATION ARE GIVEN. SAMPLE
OUTPUT OF THE CAEDM IS PRESENTED IN THIS VOLUME.
A LISTING OF THE CAEDM PROGRAM IS INCLUDED.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 754 583 15/5 15/7 12/2
RESEARCH ANALYSIS CORP MCLEAN VA

CONFORM: CONSTRAINED FORCE MODEL. VOLUME
II. DETAILED MODEL DESCRIPTION, PROGRAM
DOCUMENTATION, AND OPERATOR'S GUIDE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 72 359P GRAMANN, RICHARD H. ; DOENGES,
G. ROBERT, JR. ; TAYLOR, W. BRUCE ;
REPT. NO. RAC-R-151-VOL-2
CONTRACT: DAHCl9-69-C-0017
PROJ: RAC-012.118

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-754 582.

DESCRIPTORS: (*LOGISTICS, ARMY OPERATIONS), (*ARMY
OPERATIONS, MATHEMATICAL MODELS), (*ARMY PERSONNEL,
MILITARY REQUIREMENTS), (*LINEAR PROGRAMMING,
OPTIMIZATION), MISSION PROFILES, COMBAT READINESS,
MANAGEMENT PLANNING AND CONTROL, COMPUTER PROGRAMS,
INSTRUCTION MANUALS

(U)

IDENTIFIERS: ALLOCATION MODELS, *FORCE STRUCTURE,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, GOAL
PROGRAMMING, IBM 360 COMPUTERS

(U)

THE CONSTRAINED FORCE MODEL, CONFORM, IS
DESIGNED TO ASSIST FORCE PLANNERS IN THE TASK OF
ADJUSTING PROPOSED THEATER TROOP LISTS TO SATISFY
TROOP CEILINGS, FISCAL AND OTHER CONSTRAINTS. THE
MODEL IS ESPECIALLY SUITED FOR TROOP LIST EVALUATIONS
AND ANALYSES CONCERNED WITH SUPPORT ALLOCATION ROLE,
CONSTRAINED FORCE DESIGN, SUPPORT SHORTFALLS AND
THEATER FORCE COSTING. THE VOLUME CONTAINS A
DETAILED MODEL DESCRIPTION, PROGRAM DOCUMENTATION,
AND OPERATOR'S GUIDE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 755 095 8/13 9/2
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

AUTOMATION OF A MODEL FOR PREDICTING SOIL
MOISTURE AND SOIL STRENGTH (SMSP MODEL). (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 73 273P SMITH, MARGARET H. MEYER,
MARVIN P. ;
REPT. NO. AEWES-MISC-PAPER-M-73-1
PROJ: DA-4-A-663712-D-860
TASK: DA-4-A-663712-D-86004

UNCLASSIFIED REPORT

DESCRIPTORS: (•SOIL MECHANICS, MATHEMATICAL PREDICTION),
(•COMPUTER PROGRAMS, INSTRUCTION MANUALS), MOISTURE,
STABILITY, DENSITY, RAINFALL (U)
IDENTIFIERS: •SOIL WATER, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE (U)

THE SOIL MOISTURE STRENGTH PREDICTION (SMSP)
MODEL IS A COMPOSITE OF THE METHODS DEVELOPED AT THE
U. S. ARMY ENGINEER WATERWAYS EXPERIMENT
STATION FOR PREDICTING DAILY SOIL MOISTURE CONTENTS
AND STRENGTHS (IN TERMS OF CONE INDEX AND RATING
CONE INDEX) OF SOIL LAYERS AT DEPTHS OF 0-15 AND
15-30 CM. INFORMATION REQUIRED BY THE MODEL
INCLUDES SOIL MOISTURE ACCRETION AND DEPLETION
RELATIONS, FIELD MAXIMUM AND MINIMUM SOIL MOISTURE
CONTENTS, MOISTURE CONTENT AT START OF PREDICTION,
SOIL DRY DENSITY, SOIL MOISTURE-STRENGTH RELATION,
DAILY RAINFALL AMOUNTS, AND MINIMUM RAINFALL AMOUNT
REQUIRED FOR ACCRETION. THE MAIN TEXT OF THE REPORT
INCLUDES A DISCUSSION OF THE STRUCTURE, OPERATION,
USE, LIMITATIONS, AND MATHEMATICS OF THE MODEL.
APPENDIXES A-G INCLUDE DETAILED FLOW CHARTS AND
LISTINGS OF THE COMPUTER PROGRAM; LISTINGS,
ORGANIZATION, AND FORMAT OF INPUT DATA; EXAMPLES OF
PREDICTION RUNS AND GRAPHIC DISPLAYS OF RESULTS; AND
PROCEDURES FOR CONVERTING OUTPUT DATA TO TERMS
REQUIRED BY THE AIRFIELD CONSTRUCTION EFFORT MODEL.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 755 166 9/2 9/5 20/11

UNIVERSITY OF SOUTH FLORIDA TAMPA

SCEPTRE TRANSLATOR FEASIBILITY STUDY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,

JAN 73 RDP BOWERS, JAMES C. ; O'REILLY,

JOHN F. ; JR. ; SHAW, GARY A ; TARBUTT, RICHARD

D. ;

CONTRACT: DAAA21-72-C-0760

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, *COMPILERS),
(*ELECTRICAL NETWORKS, MATHEMATICAL ANALYSIS),
(*SPRINGS, EQUATIONS OF MOTION), TRANSFORMATIONS,
DIFFERENTIAL EQUATIONS, TRANSFER FUNCTIONS, MATHEMATICAL
MODELS, DATA PROCESSING, KINEMATICS, STATICS, DYNAMICS,
GRAPHICS, THERMAL RADIATION, TRANSIENTS, INTERFACES,
FEASIBILITY STUDIES (U)

IDENTIFIERS: NETWORK ANALYSIS THEORY, CDC 6600
COMPUTERS, SCEPTRE COMPUTER PROGRAM, FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE, IBM 360 COMPUTERS, IBM 7094
COMPUTERS, TRANSIENT RADIATION EFFECTS(ELECTRONICS),
TRANSLATOR ROUTINES, UNIVAC 1108 COMPUTERS (U)

THE BASIC OBJECTIVES OF THE RESEARCH ARE TO
INVESTIGATE THE FEASIBILITY OF AND DETERMINE THE BEST
INPUT FORMAT FOR A SCEPTRE TRANSLATOR CAPABLE OF
PROVIDING A POINT-TO-POINT INPUT OF ONE-DIMENSIONAL
MECHANICAL SYSTEMS TO THE SCEPTRE COMPILER. THE
OBJECTIVES HAVE BEEN REALIZED BY STUDYING THE
SCEPTRE PROGRAM. THE COMPILER ACCEPTS POINT-TO-
POINT (NOT NODE-TO-NODE) INPUT OF ELECTRICAL
ELEMENTS OF RESISTANCE, CAPACITANCE, INDUCTANCE,
VOLTAGE SOURCES AND CURRENT SOURCES. THE ABILITY
OF SCEPTRE TO FORMULATE DIFFERENTIAL EQUATIONS FROM
A VERBAL DESCRIPTION OF AN ELECTRICAL CIRCUIT
AND TO SOLVE THESE EQUATIONS WITH SUCH PROGRAMMING
EASE ON THE USER'S PART, PROMPTED THE SEARCH FOR
ELECTRICAL ANALOGS WITH POINT-TO-POINT MECHANICAL
SYSTEMS FOR DIRECT INPUT THROUGH A SCEPTRE
TRANSLATOR. THE SEARCH WAS DIRECTED TOWARD ONE-
DIMENSIONAL SYSTEMS SINCE ELECTRICAL CIRCUITS
PROCESSED BY SCEPTRE ARE ACTUALLY ONLY ONE-
DIMENSIONAL CURRENT FLOW NETWORKS (I.E. CURRENT CAN
FLOW IN ONLY ONE DIMENSION, THUS CURRENT IS A SCALAR
QUANTITY.) WITH THIS APPROACH IN MIND, THE
MATHEMATICAL FORMULATION OF AN ACCEPTABLE MECHANICAL
TO ELECTRICAL (HERE-IN DENOTED MECHANO-
ELECTRICAL) ANALOG IS ESTABLISHED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 755 368 20/11 9/2 13/13
BELL AEROSPACE CO BUFFALO N Y

MAGIC III: AN AUTOMATED GENERAL PURPOSE
SYSTEM FOR STRUCTURAL ANALYSIS VOLUME 1.
ENGINEER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAR 71-15 MAR 72,
JUL 72 182P HATT, JAMES R.; JORDAN,
STEPHEN;

CONTRACT: F33615-71-C-1390

PROJ: AF-1467

TASK: 146702

MONITOR: AFFDL TH-72-42-VOL-1

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY ALSO AVAILABLE FROM NTIS
815-50/SET OF 3 REPORTS AS AD-755 368-SET.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-755 369.

DESCRIPTORS: (*STRUCTURAL PROPERTIES, MATHEMATICAL
MODELS), COMPUTER PROGRAMMING, MATRICES (MATHEMATICS),
LOADS (FORCES), THERMAL PROPERTIES, STRESSES, VIBRATION,
STABILITY, STRUCTURAL MEMBERS (U)

IDENTIFIERS: MAGIC MATRIX ANALYSIS VIA GENERATIVE AND
INTERPRETIV, MATRIX ANALYSIS VIA GENERATIVE AND
INTERPRETIVE COMP, COMPUTER AIDED ANALYSIS, FINITE
ELEMENT ANALYSIS, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE, IBM 360/65 COMPUTERS, *STRUCTURAL
ANALYSIS (U)

AN AUTOMATED GENERAL PURPOSE SYSTEM FOR ANALYSIS IS
PRESENTED. THIS SYSTEM, IDENTIFIED BY THE ACRONYM,
'MAGIC III' FOR MATRIX ANALYSIS VIA
GENERATIVE AND INTERPRETIVE COMPUTATIONS, IS AN
EXTENSION OF THE STRUCTURAL ANALYSIS CAPABILITY
AVAILABLE IN THE INITIAL MAGIC SYSTEM. MAGIC III
PROVIDES A POWERFUL FRAMEWORK FOR IMPLEMENTATION OF
THE FINITE ELEMENT ANALYSIS TECHNOLOGY AND PROVIDES
DIVERSIFIED CAPABILITY FOR DISPLACEMENT, STRESS,
VIBRATION, AND STABILITY ANALYSES. IT IS WRITTEN IN
FORTRAN 4 FOR IBM 360/65 AND CDC 6400
COMPUTERS, AND CONTAINS 477 SUBROUTINES.
ADDITIONAL ELEMENTS HAVE BEEN ADDED TO THE MAGIC
ELEMENT LIBRARY IN THIS PHASE OF MAGIC DEVELOPMENT.
THESE ARE THE SOLID ELEMENTS: RECTANGULAR PRISM,
TETRAHEDRON, TRIANGULAR PRISM, SYMMETRIC TRIANGULAR
PRISM, AND TRIANGULAR RING (ASYMMETRICAL
LOADING). ALSO INCLUDED ARE THE SYMMETRIC SHEAR
WEB ELEMENT AND A REVISED QUADRILATERAL THIN SHELL
ELEMENT. THE FINITE ELEMENTS LISTED INCLUDE
MATRICES FOR STIFFNESS, MASS, PRESTRAIN LOAD, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 755 370 20/11 9/2
BELL AEROSPACE CO BUFFALO N Y

MAGIC III: AN AUTOMATED GENERAL PURPOSE
SYSTEM FOR STRUCTURAL ANALYSIS. VOLUME
III. PROGRAMMER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAR 71-15 MAR 72,
JUL 72 722P GALLO, A. MICHAEL ;
CONTRACT: F33615-71-C-1390
PROJ: AF-1467
TASK: 146702
MONITOR: AFFDL TR-72-42-VOL-3

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY ALSO AVAILABLE FROM NTIS
\$15.50/SET OF 3 REPORTS AS AD-755 368-SET.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-755 369.

DESCRIPTORS: 1*STRUCTURAL PROPERTIES, COMPUTER
PROGRAMMING), 1*COMPUTER PROGRAMMING, INSTRUCTION
MANUALS), MATRICES(MATHEMATICS), MECHANICAL PROPERTIES,
FLOW CHARTING, COMPUTER LOGIC, SUBROUTINES (U)
IDENTIFIERS: MAGIC(MATRIX ANALYSIS VIA GENERATIVE AND
INTERPRETIV, MATRIX ANALYSIS VIA GENERATIVE AND
INTERPRETIVE COMP, CDC 6400 COMPUTERS, PROGRAMMING
MANUALS, FINITE ELEMENT ANALYSIS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, IBM 360/65 COMPUTERS,
*STRUCTURAL ANALYSIS, COMPUTERS (U)

THE REPORT, VOLUME 3 OF THE MAGIC 3 SYSTEM IS
THE PROGRAMMERS' MANUAL DESIGNED TO FACILITATE
IMPLEMENTATION, OPERATION, MODIFICATION, AND
EXTENSION OF THE MAGIC 3 SYSTEM. THE MAGIC 3
SYSTEM IS WRITTEN IN FORTRAN 4 AND HAS BEEN
IMPLEMENTED ON IBM 360/65 AND CDC 6400 COMPUTERS.
IT INCLUDES 477 SUBROUTINES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 756 290 18/11 9/2 20/8
MATHEMATICAL APPLICATIONS GROUP INC ELMSFORD N Y

ANTE 3 - A FORTRAN COMPUTER CODE FOR THE
SOLUTION OF THE ADJOINT NEUTRON TRANSPORT
EQUATION BY THE MONTE CARLO TECHNIQUE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 72 175P COHEN, MARTIN O. ; BEER,
MENDEL ;
REPT. NO. MR-7028
CONTRACT: DASA01-70-C-0102
PROJ: DNA-NWED-E-074. MAGI-7004
MONITOR: DNA 2988F

UNCLASSIFIED REPORT

DESCRIPTORS: (•NEUTRON TRANSPORT THEORY, •COMPUTER
PROGRAMMING), MONTE CARLO METHOD, GEOMETRY,
COMBINATORIAL ANALYSIS, NEUTRON SCATTERING, NUCLEAR
CROSS SECTIONS, FISSION, STATISTICAL ANALYSIS,
PROBABILITY

(U)

IDENTIFIERS: CDC 6600 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

ANTE3 IS A FORTRAN CODE DESIGNED TO SOLVE THE
TIME-DEPENDENT NEUTRON TRANSPORT EQUATION IN A THREE-
DIMENSIONAL GEOMETRY BY THE ADJOINT MONTE CARLO
TECHNIQUE. THE CODE USES POINT ENERGY CROSS SECTION
DATA DERIVED FROM THE ENDF 3 LIBRARIES. IN
ADDITION TO THEORETICAL DISCUSSIONS, A COMPLETE
DESCRIPTION OF COMPUTER INPUT AND OUTPUT IS
PRESENTED. ANTE3 IS WRITTEN IN FORTRAN 4 AND IS
PRESENTLY OPERATIONAL ON A CDC-6600 DIGITAL
COMPUTER. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 756 390 20/11 1/3 9/2
KAMAN AEROSPACE CORP BLOOMFIELD CONN

RESEARCH ON STRUCTURAL DYNAMIC TESTING BY
IMPEDANCE METHODS. VOLUME II. STRUCTURAL
SYSTEM IDENTIFICATION FROM SINGLE-POINT
EXCITATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 72 88P FLANNELLY, WILLIAM G. ;
BERMAN, ALEX ; GIANISANTE, NICHOLAS ;
REPT. NO. R-1001-2
CONTRACT: DAAJ02-70-C-0012
PROJ: DA-1-F-162204-AA-43
TASK: 1-F-162204-AA-4301
MONITOR: USAAMRDL TR-72-63B

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-756 389 AND
VOLUME 3, AD-756 391.

DESCRIPTORS: (STRUCTURAL PROPERTIES, MATHEMATICAL
MODELS), (HELICOPTERS, STRUCTURAL PROPERTIES),
IDENTIFICATION SYSTEMS, RESPONSE, DAMPING, EQUATIONS OF
MOTION, COMPUTER PROGRAMS, MATRICES (MATHEMATICS), CURVE
FITTING, GRAPHICS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IBM 360/40 COMPUTERS, STRUCTURAL DESIGN, COMPUTERIZED
SIMULATION, DEGREES OF FREEDOM, DYNAMIC STRUCTURAL
ANALYSIS (U)

THE REPORT IS PRESENTED IN FOUR VOLUMES, EACH
DESCRIBING A SEPARATE PHASE OF THE BASIC THEORY OF
STRUCTURAL DYNAMIC TESTING USING IMPEDANCE
TECHNIQUES. VOLUME II DESCRIBES THE METHOD OF
SYSTEM IDENTIFICATION WHEREIN THE NECESSARY IMPEDANCE
DATA ARE EXPERIMENTALLY DETERMINED BY APPLYING A
FORCE EXCITATION AT A SINGLE POINT ON THE STRUCTURE.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 756 391 20/11 1/3 9/2
KAMAN AEROSPACE CORP BLOOMFIELD CONN

RESEARCH ON STRUCTURAL DYNAMIC TESTING BY
IMPEDANCE METHODS. VOLUME III. FREE-
BODY RESPONSE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 72 52P BERMAN, ALEX ; GIANSAnte,
NICHOLAS ; FLANNELLY, WILLIAM G. ;
REPT. No. R-1001-3
CONTRACT: DAAJ02-7U-C-0012
PROJ: DA-1-F-162204-AA-43
TASK: 1-F-162204-AA-4301
MONITOR: USAAMRDL TR-72-63C

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-756 390 AND
VOLUME 4, AD-756 392.

DESCRIPTORS: (*STRUCTURAL PROPERTIES, MATHEMATICAL
MODELS), (*HELICOPTERS, STRUCTURAL PROPERTIES),
RESPONSE, LOADS(FORCES), VIBRATION,
MATRICES(MATHEMATICS), COMPUTER PROGRAMS, CURVE FITTING,
GRAPHICS (U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IBM 360/40 COMPUTERS, STRUCTURAL ANALYSIS,
COMPUTERIZED SIMULATION, DEGREES OF FREEDOM, *DYNAMIC
STRUCTURAL ANALYSIS (U)

THE REPORT IS PRESENTED IN FOUR VOLUMES, EACH
DESCRIBING A SEPARATE PHASE OF THE BASIC THEORY OF
STRUCTURAL DYNAMIC TESTING USING IMPEDANCE
TECHNIQUES. VOLUME 3 PRESENTS A METHOD OF
DETERMINING THE FREE-BODY DYNAMIC RESPONSES FROM DATA
OBTAINED ON A CONSTRAINED STRUCTURE.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 756 392 20/11 1/3 9/2
KAMAN AEROSPACE CORP BLOOMFIELD CONN

RESEARCH ON STRUCTURAL DYNAMIC TESTING BY
IMPEDANCE METHODS. VOLUME IV.
SUBSYSTEMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 72 52P GIANANTE, NICHOLAS I FLANNELLY,
WILLIAM G. IRERMAN, ALEX I
REPT. NO. R-1001-4
CONTRACT: DAAJ02-70-C-0012
PROJ: DA-1-F-162204-AA-43
TASK: 1-F-162204-AA-4301
MONITOR: USAAMRDL TR-72-63D

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-756 391.

DESCRIPTORS: (*STRUCTURAL PROPERTIES, MATHEMATICAL
MODELS); (*HELICOPTERS, STRUCTURAL PROPERTIES),
RESPONSE, MATRICES (MATHEMATICS); CURVE FITTING,
GRAPHICS, COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
IBM 360/40 COMPUTERS, STRUCTURAL ANALYSIS,
COMPUTERIZED SIMULATION (U)

THE REPORT IS PRESENTED IN FOUR VOLUMES, EACH
DESCRIBING A SEPARATE PHASE OF THE BASIC THEORY OF
STRUCTURAL DYNAMIC TESTING USING IMPEDANCE
TECHNIQUES. VOLUME 4 DESCRIBES A METHOD OF
OBTAINING THE EQUATIONS FOR THE COMBINATION OF
MEASURED MOBILITY MATRICES OF A HELICOPTER AND ITS
SUBSYSTEMS. THE RESPONSE OF THE COMBINATION OF A
HELICOPTER AND ITS SUBSYSTEMS IS DETERMINED FROM DATA
BASED ON THE EXPERIMENTAL RESULTS OF THE MAIN SYSTEM
AND SUBSYSTEMS SEPARATELY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 757 034 20/1
TEXAS UNIV AUSTIN APPLIED RESEARCH LABS

AN EXPERIMENTAL INVESTIGATION OF THE
PARAMETRIC ARRAY IN AIR.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 73 124P BENNETT, MARY B. ;
REPT. NO. ARL-TR-73-3
CONTRACT: F44620-71-C-0015, N00014-70-A-0166-0004
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-73-0625

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOUND GENERATORS, ACOUSTIC PROPERTIES),
TRANSDUCERS, ACOUSTIC SIGNALS, HARMONIC ANALYSIS,
PROPAGATION, EXPERIMENTAL DESIGN, COMPUTER PROGRAMS,
THESES, NONLINEAR SYSTEMS, AIR (U)
IDENTIFIERS: ACOUSTICS, NONLINEAR SYSTEMS, ACOUSTIC
ARRAYS, BURGERS EQUATION, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE (U)

THE RESULTS OF AN EXPERIMENTAL INVESTIGATION OF THE
PARAMETRIC ARRAY IN AIR ARE PRESENTED AND ANALYZED.
THIS EXPERIMENT WAS DESIGNED TO YIELD QUANTITATIVE
DATA REGARDING BOTH THE PROPAGATION AND DIRECTIVITY
CHARACTERISTICS OF THE PARAMETRIC ARRAY IN AIR UNDER
THE CONDITIONS OF COLLINEAR SOURCE BEAMS AND
SPHERICAL SPREADING. THE CHARACTERISTICS OF THE
SUM FREQUENCY AND SECOND HARMONIC COMPONENTS AS WELL
AS THE DIFFERENCE FREQUENCY COMPONENT OF THE
PARAMETRIC ARRAY WERE INVESTIGATED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 757 172 1779 15/3 15/3.1
ALABAMA UNIV HUNTSVILLE

MEASURE, CRITERIA AND PROCEDURE FOR TRACK AND
SEARCH ALLOCATION. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 72-FEB 73,
FEB 73 133P POLGE, ROBERT J. MCKEE,
EDWARD R. , JR.; BHAGAVAN, B. K. HAYS, ROY
D. ;

REPT. NO. UAH-RR-138
CONTRACT: DAAH01-72-C-0585

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRCRAFT DEFENSE SYSTEMS, *RADAR
TRACKING), (*ANTIMISSILE DEFENSE SYSTEMS, RADAR
TRACKING), (*ANTIAIRCRAFT DEFENSE SYSTEMS, RADAR
TRACKING), PHASED ARRAYS, AUTOMATION, COMPUTER PROGRAMS,
OPTIMIZATION, MATHEMATICAL MODELS, SEARCH THEORY, SEARCH
RADAR, AERIAL WARFARE (U)

IDENTIFIERS: RESOURCE ALLOCATION, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, KALMAN FILTERS, CONTROL THEORY,
COVARIANCE MATRIX (U)

A GENERAL PROCEDURE FOR RADAR RESOURCE ALLOCATION
IS PRESENTED. IT REQUIRES THE COMPUTATION OF THE
COVARIANCE MATRIX OF THE POSITION ESTIMATES.
THEREFORE, FOUR ESTIMATION ALGORITHMS COMMONLY USED
FOR TRACK ARE EVALUATED AND COMPARED. A TRACKING
MEASURE APPLICABLE TO THE NON-TACTICAL EAR SYSTEM
IS DEFINED. FINALLY, A SCHEMA FOR TRACK AND SEARCH
ALLOCATION IS PRESENTED. AN EXAMPLE ILLUSTRATES
HOW THE TRACKING MEASURE IS COMPUTED AND USE IN THE
TRACK AND SEARCH ALGORITHM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 757 389 8/3 9/2
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

GUIDE FOR THE USE OF HOURLY TIDAL DATA
PLOTING PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 71 73P DAGGETT, LARRY L. ;
REPT. NO. AEWES-MISC-PAPER-H-71-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIDES, *COMPUTER PROGRAMS), INSTRUCTION
MANUALS, TABLES(DATA), DIURNAL VARIATIONS, ALTITUDE,
VELOCITY, SALINITY, TEMPERATURE, ESTUARIES, HYDRAULIC
MODELS

(U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

THE REPORT PROVIDES THE REQUIRED INFORMATION FOR
USING THE COMPUTER PROGRAM DESCRIBED HEREIN TO
CALIBRATE AND SCALE TIDAL DATA AND TO DISPLAY THESE
DATA IN GRAPHICAL AND TABULAR FORM. THE REQUIRED
INPUT FOR THE PROGRAM IS FULLY DESCRIBED, AND THE
VARIOUS OUTPUT OPTIONS ARE ILLUSTRATED. USE OF
THIS DIGITAL COMPUTER PROGRAM WILL ALLOW MORE RAPID
AND LESS EXPENSIVE PROCESSING OF HYDRAULIC MODEL
DATA. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 757 485 9/1 9/2
RAYTHEON CO WALTHAM MASS RESEARCH DIV

ANALYSIS OF INTERDIGITAL TRANSDUCERS FOR
ACOUSTIC SURFACE WAVE DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 15 DEC 71-14 DEC 72,
MAR 73 SUP TANCHELL, ROGER H. ISANDY,

FRANK :

REPT. NO. S-1524

CONTRACT: F19628-72-C-0137

PROJ: AF-5635

TASK: 563503

MONITOR: AFCRL

TR-73-0030

UNCLASSIFIED REPORT

DESCRIPTORS: (•PIEZOELECTRIC TRANSDUCERS, ACOUSTIC
PROPERTIES), COMPUTER PROGRAMMING, IMPEDANCE MATCHING,
CURVE FITTING, TIME LAG THEORY, FOURIER ANALYSIS,
INTEGRAL TRANSFORMS, ELECTRICAL PROPERTIES,
PERFORMANCE (ENGINEERING), LEAST SQUARES METHOD (U)

IDENTIFIERS: •ACOUSTIC WAVES, •SURFACE WAVES, CDC 6600
COMPUTERS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
INTERDIGITAL TRANSDUCERS, SURFACE WAVES, TRANS
COMPUTER PROGRAM, EQUIVALENT CIRCUITS, FAST FOURIER
TRANSFORM (U)

A COMPUTER PROGRAM HAS BEEN WRITTEN FOR THE
THEORETICAL ANALYSIS OF INTERDIGITAL TRANSDUCERS FOR
ACOUSTIC SURFACE WAVE DEVICES. THE THEORY IS BASED
ON AN EQUIVALENT CIRCUIT MODEL FOR THE ACOUSTO-
ELECTRIC INTERACTIONS. RESULTS ARE PRESENTED IN
BOTH THE FREQUENCY AND TIME DOMAINS. THE PROGRAM
CAN ANALYZE ANY GENERAL TRANSDUCER GEOMETRY. THE
PROGRAM IS WRITTEN IN FORTRAN IV FOR THE CDC
6600 COMPUTER. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 758 213 18/3
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

QUICK-LOOK BLAST CHARTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 71-JUN 72,

MAR 73 53P BROCK, TERRENCE K. ;
REPT. NO. AFWL-TR-72-163
PROJ: AF-8809
TASK: 88U903

UNCLASSIFIED REPORT

DESCRIPTORS: (•NUCLEAR EXPLOSIONS, •SHOCK WAVES), GUSTS,
COMPUTER PROGRAMS, GRAPHICS, BLAST (U)

IDENTIFIERS: OVERPRESSURE, BLAST COMPUTER PROGRAM,
SABER COMPUTER PROGRAM, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

PRESENTED ARE A COLLECTION OF CHARTS AND
INSTRUCTIONS FOR THEIR USE THAT MAY BE USED TO OBTAIN
ESTIMATES OF THE FREE-FIELD BLAST EFFECTS (GUST AND
OVERPRESSURE) RESULTING FROM THE DETONATION OF A
NUCLEAR WEAPON. THE REPORT IS INTENDED TO BE AN
EASY-TO-USE REFERENCE FOR PRELIMINARY CALCULATIONS
WHERE BLAST PARAMETERS ARE REQUIRED FOR INPUT TO
SYSTEMS ANALYSIS PROBLEMS AND BASED ON THE COMPUTER
PROGRAM SABER USED AT AFWL FOR ENVIRONMENT
CALCULATIONS IN SUPPORT OF SYSTEMS ANALYSES.
INCLUDED IS A SIMPLIFIED COMPUTER PROGRAM THAT WILL
GIVE THE SAME RESULTS AS THE CHARTS.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 758 300 8/2 9/2
VIRGINIA UNIV CHARLOTTESVILLE DEPT OF ENGINEERING SCIENCE
AND SYSTEMS

MATHEMATICAL TECHNIQUES FOR AUTOMATED
CARTOGRAPHY.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
FEB 73 116P JANCAITIS, JAMES R. ; JUNKINS,
JOHN L. ;
CONTRACT: DAAK02-72-C-0256
PROJ: DA-4-A-662707-D-853
MONITOR: ETL CR-73-4

UNCLASSIFIED REPORT

DESCRIPTORS: (MAPPING, COMPUTER PROGRAMMING),
INTERPOLATION, APPROXIMATION (MATHEMATICS), CURVE
FITTING, GRAPHICS, LEAST SQUARES METHOD, DIGITAL
COMPUTERS, ALGORITHMS, MATHEMATICAL MODELS, AUTOMATIC (U)
IDENTIFIERS: CDC 6400 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, COMPUTERS, GRAPHICS (U)

TWO PROBLEM AREAS, REFERRED TO AS CONSTRAINED
LINE SMOOTHING AND ANALYTIC SURFACE
MODELING, HAVE BEEN STUDIED CAREFULLY, SOLUTIONS
FORMULATED, AND FORTRAN SOFTWARE DEVELOPED. IN
CONSTRAINED LINE SMOOTHING, TECHNIQUES ARE
DEVELOPED FOR EFFICIENT, SMOOTH, CONSTRAINED
APPROXIMATION OF DIGITIZED LINES (SMOOTH). IN
ANALYTIC SURFACE MODELING, TECHNIQUES ARE
DEVELOPED FOR MODELING AND CONTOURING IRREGULAR
TOPOGRAPHIC SURFACES MEASURED BY UNAMACE DATA
(SAPMAP). THE SMOOTH AND SAPMAP SOFTWARE HAVE
BEEN TESTED ON SYNTHETIC AND REAL DIGITIZED DATA
SETS. THE RESULTS, ALONG WITH DOCUMENTATION FOR
THE FORMULATIONS AND SOFTWARE ARE PRESENTED. ALL
SOFTWARE WAS WRITTEN IN FORTRAN 4 AND ALL
COMPUTATION PERFORMED ON A CDC 6400. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 758 384 5/1 12/2
LEHIGH UNIV BETHLEHEM PA DEPT OF INDUSTRIAL
ENGINEERING

INFO-CISION - A NETWORK TECHNIQUE FOR
ANALYZING DECISION SYSTEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAP 73 37P WHITEHOUSE, GARY E. I
REPT. NO. IE-15-7205
CONTRACT: N00014-67-A-0370-0007
PROJ: NR-049-317

UNCLASSIFIED REPORT

DESCRIPTORS: (MANAGEMENT PLANNING AND CONTROL,
DECISION THEORY), GRAPHICS, DYNAMIC PROGRAMMING,
SYSTEMS ENGINEERING, COMPUTER PROGRAMMING
IDENTIFIERS: NETWORK ANALYSIS(MANAGEMENT), RISK,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
TREES(MATHEMATICS)

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(U)

THE PAPER DISCUSSES THE CONCEPT AND ILLUSTRATIONS
OF INFO-CISION: A NEW NETWORK MODELING
TECHNIQUE WHICH ANALYZES A SERIES OF DECISIONS SET IN
A TEMPORAL ENVIRONMENT. THE USER OF THE SYSTEM CAN
MODEL VARIOUS DECISION CRITERIA IN HIS MODEL, E.G.
MAXIMUM EXPECTED RETURN, MOST PROBABLE FUTURE,
ASPIRATION LEVEL, AND MAXIMUM EXPECTED UTILITY. THE
TIME VALUE OF MONEY CAN ALSO BE CONSIDERED. THE
SYSTEM YIELDS THE REALIZATION TIME OF ALL NODES IN
THE SYSTEM ALONG WITH RISK PROFILES OF THE PRESENT
WORTH AT EACH DECISION NODE. A FORTRAN 4
COMPUTER PROGRAM HAS BEEN DEVELOPED TO ANALYZE
INFO-CISION NETWORKS. THE MODE OF SOLUTION
IS SIMULATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 759 797 8/14
BOSTON COLL CHESTNUT HILL MASS

A STUDY OF THE CHARACTERISTICS OF THE LONG
TERM FLUCTUATIONS OF THE GEOMAGNETIC FIELD.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 NOV 67-31 OCT 70,
NOV 70 58P PREVETT, PETER D. ;
CONTRACT: F19628-68-C-0094
PROJ: AF-7601
TASK: 760109
MONITOR: AFCRL TR-73-0229

UNCLASSIFIED REPORT

DESCRIPTORS: (*GEOMAGNETISM, MEASUREMENT),
MAGNETOMETERS, DATA PROCESSING, COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE COLLECTION, REDUCTION AND EVALUATION OF
GEOMAGNETIC FIELD DATA AT THE WESTON GEOMAGNETIC
OBSERVATORY IS DISCUSSED IN TERMS OF THE EVOLUTION
THAT HAS TAKEN PLACE IN HARDWARE IMPLEMENTATION AND
TECHNOLOGICAL DEMAND. THE LARGE QUANTITY OF DATA
BEING GENERATED AND A FAST TURN OVER OF INFORMATION
NECESSITATES ONE TO THINK IN TERMS OF AN AUTOMATIC
FACILITY WITH BOTH ANALOG AND DIGITAL OUTPUTS WHICH
ARE COMPUTER COMPATIBLE. THE REPORT WILL DEAL
BRIEFLY WITH THE EVALUATION, BUT MAINLY THE THEME
WILL BE THE PRESENT SYSTEM, WHAT IT CONSISTS OF, WHAT
IT MEASURES, HOW IT IS BEING MEASURED, AND HOW THE
DATA IS BEING HANDLED. (AUTHOR MODIFIED
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 759 959 9/2
AUBURN UNIV ALA DIGITAL SYSTEMS LAB

A COMPUTER AIDED PROCEDURE FOR COMPLETE
DESIGN OF SEQUENTIAL MACHINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 73 95P SHIVA, S. G. INAGLE, H. T.
JRI;
REPT. NO. AU-T-26
CONTRACT: DAAH01-68-C-0296

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON INFORMATION
PROCESSING.

DESCRIPTORS: (SWITCHING CIRCUITS, DESIGN), DIGITAL
COMPUTERS, LOGIC CIRCUITS, NETWORKS, ALGORITHMS,
COMPUTER PROGRAMS (U)

IDENTIFIERS: LOGIC DESIGN, BOOLEAN ALGEBRA,
SEQUENTIAL MACHINES, FLIP FLOPS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, THEMIS PROJECT, COMPUTER AIDED
DESIGN (U)

A COMPLETE DESIGN PROCEDURE FOR BOTH COMPLETELY AND
INCOMPLETELY SPECIFIED SEQUENTIAL MACHINES IS
DISCUSSED. STARTING WITH THE STATE TABLE FOR THE
MACHINE, THE STATE MINIMIZATION AND STATE ASSIGNMENTS
ARE PERFORMED. THE MINIMIZED BOOLEAN FUNCTIONS
FOR NEXT STATE AND OUTPUT CIRCUITS FOR A D-FLIP
FLOP IMPLEMENTATION OF THE CIRCUIT ARE GENERATED.
THE ALGORITHM IS DISCUSSED WITH EXAMPLES AND THE
COMPLETE FORTRAN SOURCE PROGRAM LISTING IS
INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 760 095 15/5
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL OF
SYSTEMS AND LOGISTICS

AN ANALYSIS OF THE EFFECT UPON SCHEDULING
EFFICIENCY OF VARIANCE INDUCED BY THE
AGGREGATION OF LOW VOLUME WORKLOADS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 114P LINDLEY, THOMPSON; MAGNEL,
ROBERT H. ;
REPT. NO. SLSR-22-73A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: (AIR FORCE EQUIPMENT, MAINTENANCE),
ANALYSIS OF VARIANCE, DISTRIBUTION FUNCTIONS,
MATHEMATICAL MODELS, COMPUTER PROGRAMS, THESES,
SCHEDULING

(U)

IDENTIFIERS: LOGNORMAL DENSITY FUNCTIONS, MAINTENANCE
MANAGEMENT, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
JOB SCHEDULING

(U)

THE STUDY SOUGHT TO DETERMINE THE IMPACT OF
AGGREGATING HOMOGENEOUS LOW VOLUME WORKLOADS FOR THE
PURPOSE OF SCHEDULING DEPOT RESOURCE CONTROL
CENTERS (RCC'S). NO ATTEMPT WAS MADE TO
ADDRESS THE AREAS OF COST ACCOUNTING, MATERIAL
SUPPORT, DATA MAINTENANCE, AND FACILITY ENGINEERING
EXCEPT AS THEY WERE DETERMINED TO DIRECTLY INTERFACE
WITH THE PHYSICAL ENVIRONMENT OF AN RCC AND/OR ITS
METHOD OF OPERATION. SPECIFICALLY, THIS STUDY WAS
LIMITED TO ISOLATING AND MEASURING THE EFFECT OF
VARIANCE INTRODUCED AS A CONSEQUENCE OF SCHEDULING AN
AGGREGATE CLASS OF ITEMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 761 495 11/2
WYLE LABS HUNTSVILLE ALA

EFFECTS OF REPETITIVE SONIC BOOMS ON GLASS
BREAKAGE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 252P WHITE, R. W. ;
REPT. NO. WR-72-4
CONTRACT: DOT-FA71WA-2645
MONITOR: FAA-RD 72-43

UNCLASSIFIED REPORT

DESCRIPTORS: (*GLASS, *SONIC BOOM), FATIGUE(MECHANICS),
FRACTURE(MECHANICS), COMPUTER PROGRAMS, PRESSURE,
SIMULATION (U)
IDENTIFIERS: *WINDOW GLASS, OVERPRESSURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

AN EXPERIMENTAL PROGRAM WAS CONDUCTED IN WHICH
FIFTY-EIGHT SQUARE PANES (EDGE LENGTHS OF 3 FT AND
4 FT) OF SINGLE STRENGTH WINDOW GLASS WERE EXPOSED
TO REPETITIVE SONIC BOOM ENVIRONMENTS IN ORDER TO
MEASURE RESPONSE CHARACTERISTICS, DYNAMIC STRENGTHS
AND CUMULATIVE DAMAGE EFFECTS FOR RESIDENTIAL WINDOWS
CONTINUALLY EXPOSED TO SONIC BOOMS GENERATED BY
SUPERSONIC AIRCRAFT. (MODIFIED AUTHOR
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 762 041 9/5
HARVARD UNIV CAMBRIDGE MASS DIV OF ENGINEERING AND
APPLIED PHYSICS

A THEORETICAL AND EXPERIMENTAL STUDY OF THE
INSULATED LOOP ANTENNA IN A DISSIPATIVE
MEDIUM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 73 103P SMITH, GLENN S. ;
REPT. NO: TR-637
CONTRACT: N00014-67-A-0298-0005
PROJ: NR-371-016

UNCLASSIFIED REPORT

DESCRIPTORS: (*LOOP ANTENNAS, DIELECTRICS),
ELECTROMAGNETIC FIELDS, ADMITTANCE, ELECTRICAL
IMPEDANCE, FOURIER ANALYSIS, SERIES(MATHEMATICS),
SPHERES, COMPUTER PROGRAMS, RADIO TRANSMISSION (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
MATHEMATICAL ANALYSIS (U)

THE PERFORMANCE OF A BARE ANTENNA AS A RADIATOR IN
A DISSIPATIVE MEDIUM CAN BE SIGNIFICANTLY ALTERED BY
PLACING A DIELECTRIC COATING AROUND THE ANTENNA.
FOR CERTAIN ANTENNA TYPES AND SPECIFIC PROPERTIES
OF THE DISSIPATIVE MEDIUM, THE DIELECTRIC INSULATION
HAS BEEN SHOWN TO IMPROVE THE PERFORMANCE OF THE
ANTENNA. IN THIS PAPER A THIN WIRE CIRCULAR LOOP
ANTENNA CENTERED IN AN INSULATING SPHERICAL CAVITY
AND IMMERSED IN AN INFINITE HOMOGENEOUS ISOTROPIC
DISSIPATIVE MEDIUM IS ANALYZED. A FOURIER SERIES
SOLUTION FOR THE ANTENNA CURRENT DISTRIBUTION IS
DERIVED. THE COEFFICIENTS OF THE SERIES ARE A
COMBINATION OF THE COEFFICIENTS FOR THE LOOP IN AN
INFINITE DIELECTRIC MEDIUM, WHICH WERE DETERMINED
PREVIOUSLY BY WU, AND A SECOND TERM, WHICH IS AN
INFINITE SUM. THE PROPERTIES OF THE SUM ARE
EXAMINED AND EXPRESSIONS FOR THE ANTENNA INPUT
ADMITTANCE, IMPEDANCE AND ELECTROMAGNETIC FIELD IN
THE DISSIPATIVE MEDIUM ARE OBTAINED. NUMERICAL
RESULTS ARE PRESENTED FOR SPECIFIC ANTENNA SIZES AND
DISSIPATIVE MEDIA. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 762 536 20/12 11/6
WASHINGTON STATE UNIV PULLMAN DEPT OF PHYSICS

THEORY OF EQUATIONS OF STATE: ELASTIC-
PLASTIC EFFECTS II.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 73 119P DUVALL, GEORGE E. ; DANDEKAR,
D. P. ;
REPT. NO. WSU-SDL-72-01
CONTRACT: DAAD05-71-C-0136
MONITOR: BRL CR-106

UNCLASSIFIED REPORT

DESCRIPTORS: (*METALS, FAILURE(MECHANICS)), (*ALLOYS,
FAILURE(MECHANICS)), (*DEFORMATION, EQUATIONS OF STATE),
(*THERMODYNAMICS, SOLIDS), PLASTIC PROPERTIES,
DISLOCATIONS, STRESSES, STRAIN(MECHANICS), ELASTIC
PROPERTIES, CREEP, ANNEALING, MATHEMATICAL MODELS,
COMPUTER PROGRAMS (U)
IDENTIFIERS: *PLASTIC DEFORMATION, FORTRAN, FORTRAN 4 (U)
PROGRAMMING LANGUAGE, ELASTOPLASTICITY (U)

AFTER A BRIEF REVIEW OF THE HISTORY OF MATERIAL
FAILURE STUDIES AND OF MEASUREMENTS OF STORED ENERGY
IN PLASTICALLY DEFORMED BODIES, ENERGY AND STRESS AND
STRAIN RELATIONS ARE DEVELOPED FOR BOTH ELASTIC AND
PLASTIC DEFORMATION IN UNIAXIAL STRAIN. THE
PHYSICAL EFFECTS OF PLASTIC DEFORMATION ARE DISCUSSED
AND FOUNDATIONS ARE LAID FOR THERMODYNAMIC
CALCULATIONS OF PLASTICALLY DEFORMED MATERIALS.
CALCULATIONS OF BOTH THERMODYNAMIC AND MECHANICAL
PARAMETERS ARE DESCRIBED FOR UNIAXIAL STRAIN WITH AND
WITHOUT ENERGY STORAGE IN INTERNAL STRAINS.
CONDITIONS OF UNIAXIAL STRAIN ARE FOUND TO YIELD
NEW THERMODYNAMIC RELATIONS WHICH ARE USEFUL FOR
SYNTHESIZING CONSTITUTIVE RELATIONS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY & SEARCH CONTROL NO. /ZOM09

AD- 762 567 9/2 14/2
CYBERNETIC RESEARCH AND DEVELOPMENT CORP PRINCETON N J

SENSOR RECOGNITION DATA TECHNIQUES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 73 161P ENGEL, ALFRED ;
CONTRACT: F44620-72-C-0096
PROJ: AF-9769
MONITOR: AFOSR TR-73-0726

UNCLASSIFIED REPORT

DESCRIPTORS: (*DETECTORS, DATA PROCESSING), PATTERN
RECOGNITION, ACOUSTIC SIGNALS, SEISMIC WAVES, INFRARED
DETECTORS, ELECTROMAGNETIC RADIATION, DETONATION WAVES,
IDENTIFICATION SYSTEMS, COMPUTER PROGRAMMING,
INSTRUCTION MANUALS (U)
IDENTIFIERS: ALERT COMPUTER PROGRAM, CDC 6600
COMPUTERS, *SIGNAL PROCESSING, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, DATA PROCESSING, IMAGE
CONVERTERS, IMAGES (U)

THE ALERT COMPUTER PROGRAM IS THE APPLICATION OF
A SERIES OF MATHEMATICAL PROCEDURES TO IDENTIFY AND
CLASSIFY SENSOR SIGNALS. THESE SIGNALS CAN BE
ACOUSTIC, SEISMIC, INFRARED, ELECTROMAGNETIC OR
CHEMICAL. THE IDENTIFICATION AND CLASSIFICATION IS
ACCOMPLISHED BY COMPARING RECORDED SIGNALS TO A LIST
(LIBRARY) OF STORED SIGNALS OF EVENTS. THE
ALERT TYPOLOGICAL SYSTEM PROGRAM IS WRITTEN
IN FORTRAN IV. ITS PRESENT VERSION IS FOR A
CDC 6600 COMPUTER AND CAN BE ADAPTED TO ANY OTHER
COMPUTER OF COMPARABLE POWER. THE PROGRAM READS OR
SCANS SELECTIVELY IN A PRESCRIBABLE MANNER SAMPLED
DATA SETS OF INTEREST FROM WHICH IT EXTRACTS
TYPOLOGICALLY RELEVANT PARAMETERS FOR CLASSIFICATION.
THESE PARAMETERS CAN BE USED FOR COMPARISON WITH
CHARACTERISTIC PATTERNS IN ORDER TO IDENTIFY A
SPECIFIC EVENT OR THEY CAN SERVE DIRECTLY AS A
TYPOLOGICAL MASTER SET TO WHICH OTHER PATTERNS ARE TO
BE COMPARED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 225 1974 9/2
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GUIDANCE AND
CONTROL DIRECTORATE

A METHOD FOR MANIPULATION OF DIGITAL
COMPUTER SOURCE PROGRAMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 73 31P ISOM, LARSON SHERRILL ;
REPT. NO. RG-73-6
PROJ: DA-1-X-263306-D-073

UNCLASSIFIED REPORT

DESCRIPTORS: (*TERMINAL BALLISTICS, *COMPUTER PROGRAMS),
(*GUIDED MISSILES, TERMINAL BALLISTICS), DIGITAL
COMPUTERS, SIMULATION (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
COMPUTERIZED SIMULATION (U)

THE REPORT CONTAINS A DETAILED DISCUSSION OF A
METHOD THAT CAN BE USED FOR MANIPULATION OF XDS
SIGMA 5/7 DIGITAL COMPUTER SOURCE PROGRAMS. THE
METHOD ELIMINATES THE NECESSITY FOR HANDLING LARGE
NUMBERS OF SOURCE PROGRAM CARDS EACH TIME A SOURCE
PROGRAM IS TO BE EXECUTED BY A DIGITAL COMPUTER.
AN EXAMPLE, USED TO DOCUMENT THE TECHNIQUE, IS FROM
THE SIMULATION EFFORT ON THE CANNON LAUNCHED
GUIDED PROJECTILE. (AUTHOR)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 254 8/5 8/2
ILLINOIS UNIV URBANA DEPT OF CIVIL ENGINEERING

ANALYTICAL AEROTRIANGULATION BASED ON THE
SIMULTANEOUS ADJUSTMENT OF PHOTOGRAMMETRIC AND
GEODETIC OBSERVATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 11 APR 69-20 JUN 73,
JUN 73 13P WONG, KAM W. ;
REPT. NO. UIIU-ENG-73-2012
CONTRACT: DA-ARO(D)-31-124-G1129
MONITOR: AROD 8140:4-EN

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED FEB 71, AD-
737 748.

DESCRIPTORS: (*PHOTOGRAMMETRY, TRIANGULATION),
(*GEODESICS, TRIANGULATION), AERIAL PHOTOGRAPHY,
SURVEYING(GEOGRAPHIC), COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
GEODETIC COORDINATES, GEODETIC SURVEYS (U)

A MATHEMATICAL SOLUTION WAS SUCCESSFULLY DEVELOPED
AND A COMPUTER PROGRAM CALLED SAPGO WAS CODED IN
FORTRAN IV COMPUTER LANGUAGE FOR THE COMBINED,
SIMULTANEOUS ADJUSTMENT OF PHOTOGRAMMETRIC AND
GEODETIC OBSERVATIONS. TESTS WITH BOTH REAL AND
FICTITIOUS DATA SHOWED THAT GEODETIC MEASUREMENTS
SUCH AS STRAIGHT-LINE DISTANCES, ASTRONOMIC AZIMUTHS,
HORIZONTAL GEODETIC ANGLES AND ELEVATION DIFFERENCES
MAY BE USED TO CONTROL AN AEROTRIANGULATION SOLUTION.
PROGRAM SAPGO USES NO AUXILIARY COMPUTER STORAGE
DEVICE, AND CAN HANDLE A MAXIMUM OF 40 PHOTOS WITH A
400K CORE MEMORY. A SECOND COMPUTER PROGRAM
CALLED SAPOMFL WAS DEVELOPED FOR THE SOLUTION OF
LARGE PHOTO BLOCKS. AT THE PRESENT TIME, THIS
PROGRAM CAN ONLY ACCEPT GROUND COORDINATES AS
CONTROLS. IT FEATURES A HIGHLY EFFICIENT EQUATION
SOLVER, A DATA SORTING PROGRAM TO MINIMIZE BANDWIDTH,
A SUBPROGRAM FOR COMPUTING INITIAL APPROXIMATION AND
A SOPHISTICATED DATA MANAGEMENT SYSTEM TO MINIMIZE
CORE STORAGE REQUIREMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 363 9/2 12/2
SYRACUSE UNIV N Y

ASSOCIATIVE PROCESSING IN THE SOLUTION OF
NETWORK PROBLEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 73 263P ORLANDO, VINCENT A. ;
CONTRACT: F30602-72-C-0281
MONITOR: RADC TR-73-156

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, OPERATIONS RESEARCH),
MEMORY DEVICES, ALGORITHMS, MATHEMATICAL MODELS,
NETWORKS, COMPUTER PROGRAMS, MULTIPLE OPERATION,
THESES

(U)

IDENTIFIERS: *NETWORK FLOWS, *PARALLEL PROCESSORS,
*ASSOCIATIVE STORAGE, SHORTEST PATH METHOD, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, TRANSPORTATION MODELS,
DATA MANAGEMENT

(U)

AN ASSOCIATIVE PROCESSOR IS A HIGHLY PARALLEL
COMPUTER POSSESSING THE CAPABILITY OF ADDRESSING DATA
FIELDS BY CONTENT AND PERFORMING LOGICAL AND
ARITHMETIC OPERATIONS SIMULTANEOUSLY ON ALL STORAGE
WORDS. CLASSICAL NETWORK PROBLEMS IN THE FIELD OF
OPERATIONS RESEARCH EXHIBIT A NATURALLY ASSOCIATIVE
DATA STRUCTURE AND HAVE COMPUTATIONAL REQUIREMENTS
SIMILAR TO THE CAPABILITIES OF THE ASSOCIATIVE
PROCESSOR. THE RESEARCH REPORTED IS A QUANTITATIVE
EVALUATION OF THE APPLICABILITY OF THE ASSOCIATIVE
PROCESSOR TO THE SOLUTION OF THIS CLASS OF PROBLEMS.
SPECIFIC EXAMPLES EXAMINED ARE THE MINIMUM PATH,
ASSIGNMENT, TRANSPORTATION, MAXIMUM FLOW AND MINIMUM
COST FLOW PROBLEMS. THE RESULTS OF THIS RESEARCH
EASILY SUPPORT THE CONCLUSION THAT THE ASSOCIATIVE
PROCESSOR IS WELL SUITED TO THE SOLUTION OF THIS
CLASS OF NETWORK PROBLEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 254 8/5 8/2
ILLINOIS UNIV URBANA DEPT OF CIVIL ENGINEERING

ANALYTICAL AEROTRIANGULATION BASED ON THE
SIMULTANEOUS ADJUSTMENT OF PHOTOGRAMMETRIC AND
GEODETIC OBSERVATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 11 APR 69-20 JUN 73,
JUN 73 13P WONG, KAM W. ;
REPT. NO. UILU-ENG-73-2012
CONTRACT: DA-ARO(D)-31-124-G1129
MONITOR: AROD 8140:4-EN

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED FEB 71, AD-
737 748.

DESCRIPTORS: (*PHOTOGRAMMETRY, TRIANGULATION),
(*GEODESICS, TRIANGULATION), AERIAL PHOTOGRAPHY,
SURVEYING(GEOGRAPHIC), COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
GEODETIC COORDINATES, GEODETIC SURVEYS (U)

A MATHEMATICAL SOLUTION WAS SUCCESSFULLY DEVELOPED
AND A COMPUTER PROGRAM CALLED SAPGO WAS CODED IN
FORTRAN IV COMPUTER LANGUAGE FOR THE COMBINED,
SIMULTANEOUS ADJUSTMENT OF PHOTOGRAMMETRIC AND
GEODETIC OBSERVATIONS. TESTS WITH BOTH REAL AND
FICTITIOUS DATA SHOWED THAT GEODETIC MEASUREMENTS
SUCH AS STRAIGHT-LINE DISTANCES, ASTRONOMIC AZIMUTHS,
HORIZONTAL GEODETIC ANGLES AND ELEVATION DIFFERENCES
MAY BE USED TO CONTROL AN AEROTRIANGULATION SOLUTION.
PROGRAM SAPGO USES NO AUXILIARY COMPUTER STORAGE
DEVICE, AND CAN HANDLE A MAXIMUM OF 40 PHOTOS WITH A
400K CORE MEMORY. A SECOND COMPUTER PROGRAM
CALLED SAPOMFL WAS DEVELOPED FOR THE SOLUTION OF
LARGE PHOTO BLOCKS. AT THE PRESENT TIME, THIS
PROGRAM CAN ONLY ACCEPT GROUND COORDINATES AS
CONTROLS. IT FEATURES A HIGHLY EFFICIENT EQUATION
SOLVER, A DATA SORTING PROGRAM TO MINIMIZE BANDWIDTH,
A SUBPROGRAM FOR COMPUTING INITIAL APPROXIMATION AND
A SOPHISTICATED DATA MANAGEMENT SYSTEM TO MINIMIZE
CORE STORAGE REQUIREMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 363 9/2 12/2
SYRACUSE UNIV N Y

ASSOCIATIVE PROCESSING IN THE SOLUTION OF
NETWORK PROBLEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 73 263P ORLANDO, VINCENT A. ;
CONTRACT: F30602-72-C-0281
MONITOR: RADC TR-73-156

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, OPERATIONS RESEARCH),
MEMORY DEVICES, ALGORITHMS, MATHEMATICAL MODELS,
NETWORKS, COMPUTER PROGRAMS, MULTIPLE OPERATION,
THESES

(U)

IDENTIFIERS: *NETWORK FLOWS, *PARALLEL PROCESSORS,
*ASSOCIATIVE STORAGE, SHORTEST PATH METHOD, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, TRANSPORTATION MODELS,
DATA MANAGEMENT

(U)

AN ASSOCIATIVE PROCESSOR IS A HIGHLY PARALLEL
COMPUTER POSSESSING THE CAPABILITY OF ADDRESSING DATA
FIELDS BY CONTENT AND PERFORMING LOGICAL AND
ARITHMETIC OPERATIONS SIMULTANEOUSLY ON ALL STORAGE
WORDS. CLASSICAL NETWORK PROBLEMS IN THE FIELD OF
OPERATIONS RESEARCH EXHIBIT A NATURALLY ASSOCIATIVE
DATA STRUCTURE AND HAVE COMPUTATIONAL REQUIREMENTS
SIMILAR TO THE CAPABILITIES OF THE ASSOCIATIVE
PROCESSOR. THE RESEARCH REPORTED IS A QUANTITATIVE
EVALUATION OF THE APPLICABILITY OF THE ASSOCIATIVE
PROCESSOR TO THE SOLUTION OF THIS CLASS OF PROBLEMS.
SPECIFIC EXAMPLES EXAMINED ARE THE MINIMUM PATH,
ASSIGNMENT, TRANSPORTATION, MAXIMUM FLOW AND MINIMUM
COST FLOW PROBLEMS. THE RESULTS OF THIS RESEARCH
EASILY SUPPORT THE CONCLUSION THAT THE ASSOCIATIVE
PROCESSOR IS WELL SUITED TO THE SOLUTION OF THIS
CLASS OF NETWORK PROBLEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 688 17/2
NATIONAL BUREAU OF STANDARDS WASHINGTON D C

HEURISTIC COST OPTIMIZATION OF THE FEDERAL
TELPAK NETWORK.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
JUN 73 55P SALTMAN, R. G. ; BOLOTSKY,
G. R. ; RUTHBERG, Z. G. ;
REPT. NO. NBS-TN-787

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY AVAILABLE FROM GPO
80.80 AS SD13.46:787.

SUPPLEMENTARY NOTE: SPONSORED IN PART BY DEFENSE
COMMUNICATIONS AGENCY, WASHINGTON, D.C.

DESCRIPTORS: (*COMMUNICATION SYSTEMS, UNITED STATES
GOVERNMENT), (*COSTS, COMMUNICATION SYSTEMS), VOICE
COMMUNICATIONS, GLOBAL COMMUNICATION SYSTEMS, NETWORKS,
COMPUTER PROGRAMMING, OPTIMIZATION (U)

IDENTIFIERS: COMMUNICATION NETWORKS, FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE, HEURISTIC METHODS,
*TELECOMMUNICATION (U)

A HEURISTIC METHOD OF OPTIMIZING THE DESIGN OF A
VERY LARGE COMMUNICATIONS NETWORK IS DESCRIBED.
THE PROCEDURE IS EMPLOYED TO CONFIGURE THE ROUTES
OF 5562 COMMUNICATIONS SERVICE REQUESTS INVOLVING
1633 NODES. A FORTRAN 4 PROGRAM WAS DEVELOPED TO
SOLVE FOR ACTUAL NEEDS OF THE DEFENSE
COMMUNICATIONS AGENCY FOR LEASED-LINE SERVICE
EMPLOYING THE TELPAK TARIFF STRUCTURE.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 809 9/2 9/5
TRW SYSTEMS GROUP REDONDO BEACH CALIF

AUTOMATIC TRANSFER CHARACTERISTICS MODELING
PROGRAM (SYNAP). VOLUME I.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 3 MAY 72-3 MAR
73,

JUL 73 139P HAAS, BRIAN A. ; HOCK, EUGENE
J. IP; STACCHI, JOHN R. ;
CONTRACT: F29601-72-C-0091
PROJ: DNA-NWED-TC-022
MONITOR: AFWL TR-73-51-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SYNAP (SYMBOLIC
NETWORK ANALYSIS PROGRAM).

DESCRIPTORS: (*COMPUTER PROGRAMMING, CIRCUITS),
(*ELECTRICAL NETWORKS, TRANSFER FUNCTIONS), (*CIRCUITS,
TRANSFER FUNCTIONS), TOPOLOGY, GRAPHICS,
MATRICES (MATHEMATICS), NUCLEAR EXPLOSIONS,
ELECTROMAGNETIC PULSES, TRANSIENTS (U)
IDENTIFIERS: *NETWORK ANALYSIS THEORY, CDC 6000
COMPUTERS, COMPUTER AIDED ANALYSIS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE (U)

SYNAP (SYMBOLIC NETWORK ANALYSIS PROGRAM)
IS A FORTRAN 4 COMPUTER PROGRAM WRITTEN FOR THE
CDC 6000 SERIES COMPUTERS. SYNAP GENERATES
LITERAL AND/OR NUMERICAL TRANSFER FUNCTIONS AND THEIR
CORRESPONDING RESPONSE BASED ON A LINEAR CIRCUIT
TOPOLOGY OR SIGNAL FLOWGRAPH DESCRIPTION. THE
REPORT CONTAINS THE THEORY AND FORMULATION USED IN
THE GENERATION OF SYNAP. THE STRUCTURE OF THE
PROGRAM, ITS SUBROUTINES AND VARIOUS STORAGE SCHEMES
ARE DISCUSSED. ALSO INCLUDED IS A SAMPLE PROBLEM
SECTION ILLUSTRATING THE INPUT AND OUTPUT OF THE
VARIOUS PORTIONS OF THE PROGRAM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 890 9/5
HARVARD UNIV CAMBRIDGE MASS DIV OF ENGINEERING AND
APPLIED PHYSICS

ELECTRICALLY SMALL LOOP ANTENNA LOADED BY A
HOMOGENEOUS AND ISOTROPIC FERRITE CYLINDER -
PART I.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 73 51P GIRI.D. V. ;
REPT. NO. TR-646-PT-1
CONTRACT: N00014-67-A-0298-0005
PROJ: NR-371-016

UNCLASSIFIED REPORT

DESCRIPTORS: (•LOOP ANTENNAS, FERRITES), MAGNETIC CORES,
INTEGRAL TRANSFORMS, COMPUTER PROGRAMS, NUMERICAL
ANALYSIS

(U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
FOURIER TRANSFORMATION

(U)

A THEORETICAL TREATMENT WAS DEVELOPED FOR THE
PROBLEM OF AN ELECTRICALLY SMALL LOOP ANTENNA LOADED
BY AN INFINITELY LONG, HOMOGENEOUS, ISOTROPIC BUT
LOSSY FERRITE ROD. THE LOOP WHICH CARRIES A
CONSTANT CURRENT WAS IDEALIZED TO BE A DELTA-FUNCTION
GENERATOR. AN EFFECTIVE MAGNETIC CURRENT
(VOLTS) IS EXPRESSED EXPLICITLY IN THE FORM OF AN
INVERSE FOURIER INTEGRAL. THE CONTRIBUTION TO
THE TOTAL CURRENT FROM THE SIMPLE POLE WHICH CAN BE
ASSOCIATED WITH THE SURFACE WAVE IS CALLED THE
TRANSMISSION CURRENT WHILE THE CONTRIBUTION FROM THE
BRANCH CUT GIVING RISE TO THE RADIATED FIELD IS,
CORRESPONDINGLY, THE RADIATION CURRENT. ALSO, THE
ASYMPTOTIC BEHAVIOR OF THE CURRENT VERY NEAR THE
DELTA-FUNCTION SOURCE WAS INVESTIGATED. TWO VALUES
OF ELECTRICAL RADII OF THE ROD ARE CONSIDERED AND FOR
ONE OF THE CASES THE MAGNETIC CURRENT IS PLOTTED FOR
A RANGE OF VALUES OF THE PERMEABILITY OF THE FERRITE
ROD. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 765 165 21/5
AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

THE DESIGN OF AXIAL COMPRESSOR AIRFOILS
USING ARBITRARY CAMBER LINES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 109P FROST, GEORGE R. ;
WENNERSTROM, ARTHUR J. ;
REPT. NO. ARL-73-0107
PROJ: AF-7065
TASK: 706504

UNCLASSIFIED REPORT

DESCRIPTORS: (*AXIAL FLOW COMPRESSOR BLADES, DESIGN),
(*GAS TURBINES, *AXIAL FLOW COMPRESSORS), BLADE
AIRFOILS, CAMBER, TRAILING EDGE, MATHEMATICAL MODELS,
COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
COMPUTER AIDED DESIGN (U)

THE REPORT DESCRIBES A TECHNIQUE WHICH HAS BEEN
DEVELOPED FOR USE IN THE DESIGN OF AXIAL COMPRESSOR
AIRFOILS WITH CAMBER LINES OF ARBITRARY SHAPE. THE
SLOPE OF THE CAMBER LINE AT SEVERAL POINTS ON A
STREAMSURFACE IS DETERMINED FROM THE AIR ANGLES AT
THESE POINTS AS WELL AS THE INCIDENCE AND DEVIATION
ANGLE DISTRIBUTIONS FOR THE BLADE. A CAMBER LINE
IS PRODUCED BY FITTING A SMOOTH CURVE SEGMENT THROUGH
EACH PAIR OF POINTS FROM THE LEADING TO THE TRAILING
EDGE. A THICKNESS DISTRIBUTION IS APPLIED TO THIS
CAMBER LINE TO PRODUCE THE BLADE ELEMENT. A
COMPUTER PROGRAM WHICH USES THIS TECHNIQUE TO PRODUCE
BLADE ELEMENTS, STACK THEM, AND THEN DETERMINE
COORDINATES FOR PLANE SURFACES THROUGH THE RESULTANT
BLADE IS ALSO DESCRIBED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 765 337 9/2 9/5
TRW SYSTEMS GROUP REDONDO BEACH CALIF

AUTOMATIC TRANSFER CHARACTERISTICS MODELING
PROGRAM (SYNAP). VOLUME II. SYNAP USER'S
MANUAL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 3 MAY 72-3 MAR 73.
JUL 73 87P HAAS, BRIAN A. ; MOCK, EUGENE
J. ; PISTACCHI, JOHN R. ;
CONTRACT: F29601-72-C-0091
PROJ: DNA-NWED-TC-022
MONITOR: AFWL TR-73-51-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-764 809.

DESCRIPTORS: (*COMPUTER PROGRAMMING, INSTRUCTION
MANUALS), (*ELECTRICAL NETWORKS, TRANSFER FUNCTIONS),
(*CIRCUITS, TRANSFER FUNCTIONS), TOPOLOGY, INTEGRAL
TRANSFORMS, GRAPHICS, MATHEMATICAL MODELS,
ELECTROMAGNETIC PULSES, NUCLEAR EXPLOSIONS, TRANSIENT(U)
IDENTIFIERS: LAPLACE TRANSFORMATION, *NETWORK ANALYSIS
THEORY, CDC 6000 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

SYNAP IS A COMPUTER PROGRAM DEVELOPED TO PROVIDE A
MATHEMATICAL MODELING CAPABILITY TO THE AIR FORCE
WEAPONS LABORATORY (AFWL) SYSTEM ANALYSIS CODE
AND A MATHEMATICAL INTERFACE TO THE CURRENTLY
AVAILABLE CIRCUIT ANALYSIS CODES. THE PROGRAM
DERIVES LITERAL AND/OR NUMERICAL TRANSFER FUNCTIONS
AS EXPANDED RATIOS OF POLYNOMIALS OF THE LAPLACE
TRANSFORM VARIABLE S. IT ALSO PROVIDES AC,
TRANSIENT AND SENSITIVITY ANALYSIS FOR THE TRANSFER
FUNCTION. SYNAP GREATLY EXTENDS THE CAPABILITY OF
EXISTING CIRCUIT ANALYSIS PROGRAMS TO SOLVE LARGER
AND MORE COMPLEX CIRCUIT AND A SYSTEM ANALYSIS
PROBLEMS. THE TRANSFER FUNCTIONS DERIVED CAN
REPLACE DETAILED PIECE-PART TOPOLOGICAL CIRCUITS,
THUS ENABLING ANALYSES TO BE PERFORMED ON SYSTEMS
CONTAINING A LARGER NUMBER OF CIRCUITS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 766 248 21/5 20/4
GENERAL MOTORS CORP INDIANAPOLIS IND DETROIT DIESEL
ALLISON DIV

TRANSONIC FLOW AROUND COMPRESSOR ROTOR
BLADE ELEMENTS. VOLUME 1. ANALYSIS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 DEC 71-30 JUN 73,
AUG 73 9UP KURZROCK, JOHN W. INOVICK,
ALLEN S. ;

REPT. NO. DDAD-EDR-7692-VOL-1

CONTRACT: F33615-72-C-1098

PROJ: AF-3066

TASK: 306604

MONITOR: AFAPL

TR-73-69-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-766 249.

DESCRIPTORS: (AXIAL FLOW COMPRESSOR BLADES, TRANSONIC
CHARACTERISTICS), (AXIAL FLOW COMPRESSORS, DESIGN),
NUMERICAL ANALYSIS, THREE DIMENSIONAL FLOW, CASCADE
STRUCTURES, PARTIAL DIFFERENTIAL EQUATIONS, COMPUTER
PROGRAMMING, BOUNDARY VALUE PROBLEMS

(U)

IDENTIFIERS: CDC 6600 COMPUTERS, COMPUTER AIDED
ANALYSIS, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, IBM
370/165 COMPUTERS

(U)

A NUMERICAL TECHNIQUE HAS BEEN DEVELOPED TO OBTAIN
A SOLUTION FOR STEADY, TRANSONIC BLADE ELEMENT FLOW
IN AN AXIAL COMPRESSOR ROTOR OF A TURBOMACHINE.
RADIUS VARIATION AND STREAM SURFACE CONVERGENCE ARE
INCLUDED. THE MIXED-OUT EXIT CONDITIONS INCLUDE
SHOCK WAVE LOSSES AND VISCOUS MIXING LOSSES. THE
TIME-DEPENDENT NAVIER-STOKES EQUATIONS IN
CONSERVATION LAW FORM ARE CAST IN A RELATIVE
COORDINATE SYSTEM SUITABLE FOR DESCRIBING ROTOR BLADE
ELEMENT FLOW. A DISCRETIZED METHOD OF
CHARACTERISTICS IS USED TO DETERMINE THE BOUNDARY
CONDITIONS ALONG THE BLADE SURFACE AND EXIT PLANE.
STEADY, SUPERSONIC, UNIFORM FLOW CONDITIONS ARE
SPECIFIED AT UPSTREAM INFINITY, AND PERIODICITY IS
ENFORCED ON THE REMAINING FREE BOUNDARIES. THE
HYPERBOLIC/PARABOLIC SYSTEM OF EQUATIONS DESCRIBING
THE MIXED FLOW PROBLEM ARE APPROXIMATED BY THE
EXPLICIT MACCORMACK FINITE-DIFFERENCE SCHEME.
THE TIME-DEPENDENT NUMERICAL SOLUTION RAPIDLY
CONVERGES TO A STEADY-STATE RESULT. COMPARISONS
ARE MADE WITH EXPERIMENTAL DATA FOR TWO-DIMENSIONAL
CASCADE FLOWS AND ROTOR BLADE ELEMENT FLOW.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 766 647 20/4 20/6
ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE
STATION TENN

FIBER OPTICS PARTICLE-SIZING SYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 71-JUN 72,
SEP 73 89P BENTLEY, H. T. ;
REPT. NO. AEDC-TR-73-111
PROJ: ARO-B95252

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARO:
INC., TULLAHOMA, TENN REPT. NO ARO-OMD-TR-73-
48.

DESCRIPTORS: (•FLOW FIELDS, PARTICLE SIZE), (•OPTICAL
INSTRUMENTS, FLOW VISUALIZATION), LASERS, FIBER OPTICS,
ELECTROOPTICS, DISTRIBUTION FUNCTIONS, STATISTICAL
DISTRIBUTIONS, DESIGN, WIND TUNNELS, COMPUTER PROGRAM(U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

A FIBER OPTICS PARTICLE-SIZING SYSTEM IS DISCUSSED
WITH RESPECT TO THEORY OF OPERATION AND DATA
ACQUISITION AND REDUCTION TECHNIQUES. THE SYSTEM
USES A SHADOW-GRAPHIC TECHNIQUE TO DETERMINE THE
DIMENSIONS AND NUMBERS OF PARTICLES MOVING IN A FLOW
FIELD. THE SYSTEM IS DIGITAL IN NATURE.
PARTICLES PASS THROUGH A COLLIMATED LASER BEAM AND
ARE IMAGED ONTO A LINEAR ARRAY BY A COAXIAL LENS.
THE ARRAY IS COMPOSED OF THE EXPOSED ENDS OF A
FIBER OPTICS BUNDLE WHICH SERVES AS A 'LINK' BETWEEN
THE ARRAY PLANE AND THE SENSING PHOTO-DETECTOR
MODULES. BEING AN IMAGING DEVICE, IT CAN MEASURE A
WIDE RANGE OF PARTICLE SIZES THROUGH THE PROPER
SELECTION OF OPTICS. SIZES RANGING FROM 2 TO 1500
MICROMETERS HAVE BEEN MEASURED IN THE COURSE OF THIS
PROJECT. COMPARISONS OF HOLOGRAPHIC DATA OF A
LIQUID ROCKET INJECTOR AND OF WATER SPRAY NOZZLES ARE
MADE WITH THE FIBER OPTICS SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 766 767 3/2 4/1 9/2
AMERICAN INSTITUTES FOR RESEARCH KENSINGTON MD

SPACE FORECASTING DATA PROCESSING
SYSTEMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 11 DEC 70-30 JUN 73.

JUL 73 43P

CONTRACT: F19628-71-C-0069

PROJ: AF-8666

TASK: A66601

MONITOR: AFCRL TR-73-0531

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOLAR DISTURBANCES, MATHEMATICAL
PREDICTION), (*SPACE ENVIRONMENTS, *COMPUTER
PROGRAMMING), SCIENTIFIC SATELLITES, TELEMETERING DATA,
SUNSPOTS, SOLAR FLARES, DATA PROCESSING (U)
IDENTIFIERS: CDC 6600 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, UNIVAC 1108 COMPUTERS (U)

THE SPACE FORECASTING DATA PROCESSING
SYSTEMS IS PART OF A RESEARCH AND DEVELOPMENT
(R+D) EFFORT PERFORMED AT AIR FORCE CAMBRIDGE
RESEARCH LABORATORIES (AFCRL) IN CONJUNCTION
WITH THE AIR WEATHER SERVICE (AWS). THIS
R+D PROJECT IS AN EFFORT DESIGNED TO RECEIVE,
ANALYZE, PROCESS AND DISSEMINATE RESULTS OF
ASTROGEOPHYSICAL DATA COLLECTED BY A WORLDWIDE
OBSERVATIONAL NETWORK. THE COMPUTER PROGRAMS
DEVELOPED ARE PART OF A LARGE OPERATIONAL SYSTEM
EXECUTED ON THE UNIVAC 1108 DIGITAL COMPUTER HOUSED
AT OFFUTT AIR FORCE BASE, OMAHA,
NEBRASKA. THE DEVELOPED PROGRAMS WILL PROCESS AND
ANALYZE INCOMING DATA FOR OPERATIONAL AS WELL AS
SCIENTIFIC USE, AND SPECIFICALLY ATTEMPT TO RELATE
PERTINENT SOLAR PHENOMENA TO EFFECTS CAUSED WITHIN
THE EARTH'S ATMOSPHERE/IONOSPHERE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 767 238 1774 9/2
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

COMPUTER-AIDED DESIGN OF RADAR SIGNALS
USING THE AMBIGUITY FUNCTIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.:

SEP 73 72P MEDEA, JOHN V. ;

REPT. NO. ECOM-4149

PROJ: DA-1-S-162701-A-042, DA-1-S-663715-D-091

TASK: 1-S-162701-A-04201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ERRATA SHEET INSERTED.

DESCRIPTORS: (RADAR SIGNALS, DESIGN), GRAPHICS, CURVE
FITTING, COMPUTER PROGRAMS, DOPPLER EFFECT, RADAR
TARGETS

(U)

IDENTIFIERS: WAVEFORMS, *AMBIGUITY FUNCTIONS, SIGNAL
PROCESSING, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
COMPUTER AIDED DESIGN

(U)

THE REPORT DOCUMENTS THE DEVELOPMENT OF A COMPUTER-
AIDED DESIGN PROGRAM FOR DETERMINING THE RESOLVING
POWER OF RADAR SIGNALS FROM THEIR AMBIGUITY
FUNCTIONS. THE PROGRAM COMPUTES THE AMBIGUITY
FUNCTION FOR ANY FINITE SIGNAL ENVELOPE AND DISPLAYS
IT ON A GRAPHICS TERMINAL. IT IS CURRENTLY
OPERATIONAL ON THE PDP-9/339 REMOTE GRAPHICS
TERMINAL AND THE TEKTRONIX 4010 TERMINALS AT THE
UNIVERSITY OF MICHIGAN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 767 690 9/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

CONTROL STRUCTURES IN DIGITAL PROCESSES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 73 SIP POWERS, V. MICHAEL ;
REPT. NO. NPS-52PW73UB1A

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING LANGUAGES, CONTROL SEQUENCES); DIGITAL COMPUTERS, COMPILERS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: LOGIC DESIGN, FORTRAN, MCS-4 COMPUTERS, SIMPL PROGRAMMING LANGUAGE, MICROPROGRAMMING, ADVANCED AVIONICS DIGITAL COMPUTER, FORTRAN 4 PROGRAMMING LANGUAGE, ALGOL, PL/I PROGRAMMING LANGUAGE (U)

THE CONTROL SPACE OF A DIGITAL PROCESS CAN BE VIEWED AS A PROJECTION OF THE STATE SPACE OF THE PROCESSOR. THIS STATE SPACE MAY BE AN INTERPRETATION OF SOME UNDERLYING (PERHAPS PHYSICAL) PROCESSOR'S STATE SPACE. A CONTROL OPERATOR IS A PROJECTION OF A PROCESS STEP: THE PORTION WHICH SPECIFIES THE 'NEXT CONTROL STATE'. A SET OF ELEMENTARY CONTROL STRUCTURES IS DEFINED AND USED AS A COMMON BASIS FOR COMPARING THE CONTROL STRUCTURES IN A MICROCOMPUTER AND SEVERAL PROGRAMMING LANGUAGES. THE RELATIONSHIP OF THIS VIEW OF CONTROL TO SEVERAL AREAS OF COMPUTER SCIENCE RESEARCH IS NOTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 767 906 9/5 9/2 17/2-1
SYRACUSE UNIV N Y

ANTENNA PATTERN DISTORTION COMPUTER
PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 73 43P PERINI, JOSE; HIRASAWA,
KAZUHIRO ;
CONTRACT: F30602-72-C-0360
MONITOR: RADC TR-73-230

UNCLASSIFIED REPORT

DESCRIPTORS: (*ANTENNA RADIATION PATTERNS, *COMPUTER
PROGRAMS), DISTORTION, ELECTROMAGNETIC COMPATIBILITY,
COMMUNICATION SYSTEMS, NUMERICAL ANALYSIS (U)
IDENTIFIERS: HONEYWELL 635 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE, FORTRAN (U)

PRESENTLY, WHEN A NEW COMMUNICATION FACILITY IS
DESIGNED, THERE IS NO SIMPLE WAY THAT THE PROJECT
ENGINEER CAN PREDICT THE INTERACTION BETWEEN THE MANY
ANTENNAS THAT WILL BE PRESENT IN THE FACILITY. THE
AVAILABLE RULES OF THUMB ARE TOO CRUDE AND DO NOT
REALLY GIVE ANY DETAILED INFORMATION ON THE ANTENNA
PATTERN DISTORTION OR MUTUAL COUPLING EFFECTS.
RECENT DEVELOPMENTS IN THE AREA OF COMPUTER AIDED
DESIGN OF ANTENNAS ALLOWED THE DEVELOPMENT OF A
COMPUTER PROGRAM THAT CAN PERFORM AN ACCURATE
ANALYSIS OF THE MOST COMMON ANTENNA INSTALLATIONS
WITH FAR MORE DETAIL THAN HAS BEEN POSSIBLE. THE
DESCRIPTION AND USAGE OF THIS PROGRAM IS THE SUBJECT
OF THE REPORT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 162 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY,
PHASE II (WAGCAP II).

(U)

DESCRIPTIVE NOTE: FINAL REPT.

JUN 73 49p

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-753 628 AND APPENDIX
B, PART I, AD-768 166.

DESCRIPTORS: (•WAR GAMES, MATHEMATICAL MODELS), (•ARMY
OPERATIONS, •COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, INSTRUCTION MANUALS, CORRECTIONS,
SENSITIVITY (U)

IDENTIFIERS: WAGCAP (WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, DIVWAG COMPUTER PROGRAM, FORCE STRUCTURE,
COMPUTERIZED SIMULATION, FORTRAN 4 PROGRAMMING
LANGUAGE, FORTRAN (U)

THE REPORT, SUPPORTED BY APPENDICES A THROUGH
D, DESCRIBES THE WORK PERFORMED AND RESULTS
ACHIEVED BY COMPUTER SCIENCES CORPORATIONS
COMBAT DEVELOPMENT RESEARCH OFFICE AS THEY
SUPPORTED THE DIVISION WAR GAME (DIVWAG)
MODEL IN THE AREAS OF MODEL MAINTENANCE,
TECHNICAL TRAINING OF GOVERNMENT PERSONNEL,
TECHNICAL SUPPORT, AND SENSITIVITY TESTING.
THE VOLUME CONTAINS THE MAIN REPORT AND APPENDIX
A - STATEMENT OF WORK. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 163 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY,
PHASE II (WAGGAP II). APPENDIX B.
SENSITIVITY TEST DESCRIPTIONS. PART II.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

JUN 73 441P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO APPENDIX B, PART I,
AD-768 166 AND APPENDIX C, AD-768 164.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, SENSITIVITY, CLOSE SUPPORT, TANKS(COMBAT
VEHICLES), COMBAT READINESS, KILL PROBABILITIES,
MILITARY INTELLIGENCE, COMPUTER PROGRAMS (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, DIVWAG COMPUTER PROGRAM, FORCE STRUCTURE,
COMPUTERIZED SIMULATION, FORTRAN 4 PROGRAMMING
LANGUAGE, FORTRAN (U)

THE PURPOSE OF THE SENSITIVITY TEST WAS TO STUDY
GROUND COMBAT ASSESSMENTS AS FUNCTIONS OF INITIAL
VELOCITY OF ATTACKING UNITS AND OF VARIATIONS IN
FORCE RATIOS AND TO STUDY THE INTERRELATIONSHIPS OF
INITIAL VELOCITY AND FORCE RATIOS AS THEY IMPACT ON
BATTLE RESULTS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 164 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY,
PHASE II (WAGCAP II). APPENDIX C.
DIVWAG MODEL MAINTENANCE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

JUN 73 513P
CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO APPENDIX B, PART 2,
AD-768 163 AND APPENDIX D, AD-768 165.

DESCRIPTORS: (•WAR GAMES, MATHEMATICAL MODELS), (•ARMY
OPERATIONS, •COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, SENSITIVITY, CONTROL SEQUENCES, MILITARY
INTELLIGENCE, AIRMOBILE OPERATIONS, INSTRUCTION MANUALS,
CORRECTIONS (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, DIVWAG COMPUTER PROGRAM, FORCE STRUCTURE,
COMPUTERIZED SIMULATION, FORTRAN 4 PROGRAMMING
LANGUAGE, CDC 3300 COMPUTERS, CDC 6500 COMPUTERS,
FORTRAN (U)

THE REPORT DESCRIBES THE MODIFICATIONS APPLIED TO
THE DIVISION WAR GAME (DIVWAG) MODEL IN
BOTH THE CONTROL DATA CORPORATION (CDC 3300
AND 6500 COMPUTER SYSTEMS CONFIGURATIONS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 165 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY,
PHASE II (WAGCAP II). APPENDIX D.
WAGCAP II TECHNICAL TRAINING.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

JUN 73 97P

CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO APPENDIX C: AD-768
164.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), MILITARY TRAINING,
INSTRUCTION MANUALS (U)

IDENTIFIERS: WAGCAP(WAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, DIVWAG COMPUTER PROGRAM, FORCE STRUCTURE,
COMPUTERIZED SIMULATION, FORTRAN 4 PROGRAMMING
LANGUAGE, FORTRAN (U)

THE REPORT DESCRIBES THE TRAINING ON THE TECHNICAL
ASPECTS OF THE DIVISION WAR GAME (DIVWAG)
MODEL WHICH WAS PROVIDED TO GOVERNMENT PERSONNEL BY
COMPUTER SCIENCES CORPORATION PERSONNEL IN
FULFILLMENT OF THEIR CONTRACT REQUIREMENTS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 166 15/7 9/2
COMPUTER SCIENCES CORP FORT LEAVENWORTH KANS COMBAT
DEVELOPMENTS RESEARCH OFFICE

IMPROVEMENT OF THE WAR-GAMING CAPABILITY,
PHASE II (WAGCAP II). APPENDIX B.
SENSITIVITY TEST DESCRIPTIONS. PART I.

(U)

DESCRIPTIVE NOTE: FINAL REPT.

JUN 73 506P
CONTRACT: DAAG11-70-C-0875

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-768 162 AND APPENDIX
B, PART 2, AD-768 163.

DESCRIPTORS: (*WAR GAMES, MATHEMATICAL MODELS), (*ARMY
OPERATIONS, *COMPUTER PROGRAMMING), GAME THEORY, MISSION
PROFILES, SENSITIVITY, AIRMOBILE OPERATIONS, COMBAT
READINESS, CLOSE SUPPORT, MILITARY INTELLIGENCE, COMBAT
SURVEILLANCE, COUNTERMEASURES, KILL PROBABILITIES (U)

IDENTIFIERS: WAGCAPIWAR GAMING CAPABILITY), WAR GAMING
CAPABILITY, DIVWAG COMPUTER PROGRAM, FORCE STRUCTURE,
COMPUTERIZED SIMULATION, FORTRAN 4 PROGRAMMING
LANGUAGE, FORTRAN (U)

THE REPORT DESCRIBES THE SENSITIVITY TESTS
CONDUCTED ON THE DIVISION WAR GAME (DIVWAG)
MODEL BY COMPUTER SCIENCES CORPORATION,
PERSONNEL IN SUPPORT OF MODEL DEVELOPMENT AND
VALIDATION EFFORTS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 713 19/5 15/3 9/2
ARMY WEAPONS COMMAND ROCK ISLAND ILL GENERAL THOMAS J
RODMAN LAB

THE FUE (FIRE UNIT EFFECTIVENESS) AIR
DEFENSE GUN EVALUATION PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 227P HUNN, FRED L. ;
REPT. NO. ANSWER-RR-5-4-72-73
PROJ: DA-1-X-222234-D-679
TASK: 1-X-222234-D-67902
MONITOR: AMSAA INTERIM NOTE-A-47

UNCLASSIFIED REPORT

DESCRIPTORS: (•ANTIAIRCRAFT DEFENSE SYSTEMS,
•ANTIAIRCRAFT GUNNERY), (•COMPUTER PROGRAMS,
•INSTRUCTION MANUALS), ANTIAIRCRAFT GUNS, ANTIAIRCRAFT
FIRE CONTROL SYSTEMS, MAN MACHINE SYSTEMS, SUBROUTINES,
PROBABILITY, MATHEMATICAL MODELS (U)
IDENTIFIERS: FUE COMPUTER PROGRAM, VULCAN GUNS,
MINIGUNS, COMPUTERIZED SIMULATION, FORTRAN 4
PROGRAMMING LANGUAGE, FORTRAN (U)

THE FIRE UNIT EFFECTIVENESS (FUE) MODEL IS
A COMPUTER PROGRAM. IT SIMULATES, IN MONTE
CARLO FASHION, ONE AIR DEFENSE GUN FIRING AT ONE
MANEUVERING AIRCRAFT. THREE OF THE SUBMODELS
SIMULATE THE REAL WORLD TO AN EXTENT NOT KNOWN IN
PREVIOUS AIR DEFENSE MODELS. THESE SUBMODELS
SIMULATE VISUAL DETECTION, THE VULCAN SIGHT CURRENT
GENERATOR, AND THE VULCAN MAN-MACHINE DYNAMIC
INTERACTION. THE REPORT IS A PROGRAMMER'S MANUAL.
IT DISCUSSES THE INNER WORKINGS OF THE MODEL IN
DETAIL, AND MAKES IT POSSIBLE FOR OTHER USERS TO
MODIFY THE PROGRAM OR CANNABALIZE IT.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 911 13/10 9/2
NIELSEN ENGINEERING AND RESEARCH INC MOUNTAIN VIEW
CALIF

THEORETICAL ANALYSIS OF CYCLOIDAL PROPELLERS.
PART 1. PROGRAM MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 70-30 JUN 73,
JUN 73 5HP MENDENHALL, MICHAEL R. ;
SPANGLER, S. R. ;
REPT. NO. NEAR-TR-53-PT-2
CONTRACT: N00014-70-C-0346
PROJ: SRO09-01, NEAR-168/C
TASK: SRO09-01-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 30 JUN 73.
AD-768 910.

DESCRIPTORS: (*CYCLOIDAL PROPELLERS,
PERFORMANCE(ENGINEERING)), (*COMPUTER PROGRAMS,
INSTRUCTION MANUALS), PROPELLERS(MARINE), BLADE
AIRFOILS, CAMBER, WAKE, VORTICES, CAVITATION,
MATHEMATICAL MODELS, TWO DIMENSIONAL FLOW (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, FORTRAN, (U)
CDC-6600 COMPUTERS

A COMPUTER PROGRAM HAS BEEN DEVELOPED TO PREDICT
THE BEHAVIOR AND PERFORMANCE OF A CYCLOIDAL PROPELLER
ASSUMING TWO-DIMENSIONAL FLOW. POTENTIAL FLOW
METHODS ARE USED AND THE WAKE VORTICITY SHED FROM
EACH BLADE IS APPROXIMATED BY A NUMBER OF DISCRETE
VORTICES. THE INTERFERENCE OF THE WAKE ON THE
BLADES, THE BLADES ON THE WAKE, AND MUTUAL
INTERFERENCE BETWEEN THE BLADES ARE CONSIDERED. THE
REPORT IS A USER'S MANUAL FOR THE COMPUTER PROGRAM.
THIS PROGRAM MANUAL CONTAINS A DESCRIPTION OF THE
USE OF THE PROGRAM, INSTRUCTIONS FOR PREPARATION OF
INPUT, A DESCRIPTION OF THE OUTPUT, A PROGRAM
LISTING, AND SAMPLE CASES. THE THEORY AND
COMPARISONS WITH THREE-DIMENSIONAL DATA ARE DESCRIBED
IN PART 1 OF THIS REPORT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 769 275 8/14 8/7
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

AN EXPERIMENTAL SYSTEM FOR AUDIO -
MAGNETOTELLURIC MEASUREMENTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 102P POUND, JOHN G. ; BOSTICK, F.
X. : JR. ; SMITH, H. W. ;
REPT. NO. TR-151
CONTRACT: N00014-67-A-0126-0004, NSF-GA-38827

UNCLASSIFIED REPORT

DESCRIPTORS: (•GEOPHYSICAL PROSPECTING, •TELLURIC
CURRENTS), VERY LOW FREQUENCY, INSTRUMENTATION,
DATA PROCESSING, SEASONAL VARIATIONS, EARTH
MODELS, ELECTRICAL RESISTIVITY, MAGNETOMETERS,
COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: TELLURIC CURRENT EXPLORATION, AMT
COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

AN EXPERIMENTAL, FREQUENCY DOMAIN SYSTEM FOR AUDIO-
MAGNETOTELLURIC (AMT) MEASUREMENTS IS DESCRIBED
ALONG WITH APPROPRIATE ELECTROMAGNETIC FIELD THEORY
AND DATA PROCESSING TECHNIQUES. THE SYSTEM EMPLOYS
AN INDUCTION COIL MAGNETIC FIELD SENSOR, LEAD METAL
ELECTRODES FOR ELECTRIC FIELD DETECTION, AND A PAIR
OF SYNCHRONIZED WAVE ANALYZERS FOR FREQUENCY
SELECTION. DATA IS DISPLAYED ON A STORAGE
OSCILLOSCOPE AND STORED ON POLAROID PHOTOGRAPHS.
THIS INSTRUMENTATION IS EMPHASIZED IN THE REPORT
WITH DETAILED DESCRIPTIONS OF SENSORS AND ELECTRONIC
EQUIPMENT. SOURCES OF THE EARTH'S NATURAL FIELD
ARE DISCUSSED WITH PARTICULAR REFERENCE TO POSSIBLE
SEASONAL VARIATIONS IN THE STRENGTH OF THE AUDIO-
MAGNETOTELLURIC SIGNAL. ALSO, SOURCE DISTANCE
REQUIREMENTS ARE INCLUDED, AND THE SURFACE IMPEDANCE
OF A STRATIFIED EARTH MODEL IS DERIVED. FINALLY,
RESULTS OF AMT MEASUREMENTS IN CENTRAL TEXAS
ARE PRESENTED. RAW PHOTOGRAPHIC DATA AND COMPUTER-
ESTIMATED APPARENT RESISTIVITY INFORMATION IS
DISPLAYED, AND RECOMMENDATIONS FOR SYSTEM
IMPROVEMENTS ARE MADE. (AUTHOR)

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UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 769 679 5/9 9/2
NAVY PERSONNEL RESEARCH AND DEVELOPMENT CENTER SAN DIEGO
CALIF

ENLISTED ROTATION MANAGEMENT: USERS
GUIDE TO THE COMPUTERIZED EQUILIBRIUM FLOW
MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 73 78P BORGES, NORMAN I. ; SEGAL,
JERRY A. ; THORPE, ROBERT P. ;
REPT. NO. NPROC-TK-74-1
PROJ: ADU-P43-07X.C3

UNCLASSIFIED REPORT

DESCRIPTORS: (*NAVAL PERSONNEL, *ROTATION),
(*COMPUTER PROGRAMS, *MANPOWER UTILIZATION),
EMPLOYMENT, JOBS, NAVAL SHORE FACILITIES,
SHIPBOURNE, MANPOWER, PERSONNEL MANAGEMENT,
DEPLOYMENT, DECISION MAKING, OPTIMIZATION,
FORTRAN (U)
IDENTIFIERS: JOB ROTATION, PERSONNEL ROTATION,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE PLANNED PERIODIC ROTATION OF ENLISTED PERSONNEL
BETWEEN SEA AND SHORE ASSIGNMENTS IS A FIRMLY
ESTABLISHED PRACTICE IN THE NAVY. MANAGING
ROTATION IN AN EQUITABLE AND EFFECTIVE MANNER,
HOWEVER, CONTINUES TO POSE SERIOUS PROBLEMS THAT ARE
EXTREMELY DIFFICULT TO RESOLVE. PREVIOUSLY
DEVELOPED COMPUTER PROGRAMS HAVE SUCCESSFULLY
DEMONSTRATED THE FEASIBILITY OF GENERATING
QUANTITATIVE DATA USEFUL IN ROTATION-RELATED
DECISIONS. THE COMPUTER MODEL DESCRIBED IN THIS
REPORT PROVIDES A HIGHLY FLEXIBLE MANAGEMENT TOOL
THAT CAN BE CONTROLLED BY THE USER THROUGH SELECTED
DATA ON THREE PARAMETER CARDS AND AN INPUT PERSONNEL
DATA DECK AT ANY DESIRED LEVEL OF OCCUPATIONAL
GROUPING. BASIC OUTPUT CONSISTS OF EQUILIBRIUM
TOURS THAT WOULD SUPPORT PRESCRIBED TOURS FOR EACH OF
THREE SELECTED CONDITIONS. A SECONDARY OUTPUT
PRESENTS SUMMARY TABLES OF POPULATION AGGREGATE
CHARACTERISTICS TO AID IN BROAD POLICY TESTING AND
FORMAL ACTION. A VARIETY OF OTHER PROBLEMS MAY
ALSO BE DEALT WITH BY MANIPULATION OF THE INPUT
PARAMETERS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 764 865 9/2
MITRE CORP BEDFORD MASS

CONSTRUCTION AND APPLICATION OF REPRESENTATIVE
SYNTHETIC WORKLOADS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 73 59P SKEENIVASAN, K. IKLEINMAN, A.

J. i
REPT. NO. ME-2585
CONTRACT: F19628-73-C-0001
PROJ: AF-572F
MONITOR: ESD TR-73-212

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, JOB ANALYSIS),
(*COMPUTER PROGRAMMING, JOB ANALYSIS), INPUT
OUTPUT DEVICES, COMPILERS, COMPUTER PROGRAMS,
FORTRAN, CENTRAL PROCESSING UNITS
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE PAPER DESCRIBES A METHOD OF CONSTRUCTING A REPRESENTATIVE DRIVE WORKLOAD USING SYNTHETIC PROGRAMS. THE REAL WORKLOAD IS CHARACTERIZED BY THE MAGNITUDE OF DEMANDS PLACED ON THE VARIOUS SYSTEM RESOURCES: FOR EXAMPLE, THE CENTRAL PROCESSING UNIT TIME, NUMBER OF I/O ACTIVITIES INITIATED, CORE USED AND THE USAGE OF UNIT RECORD DEVICES. THESE CHARACTERISTICS FOR EACH JOB ARE OBTAINED FROM THE SYSTEM ACCOUNTING DATA AND ARE USED TO DETERMINE THE CHARACTERISTICS OF THE DRIVE WORKLOAD BY MATCHING THE JOINT PROBABILITY DISTRIBUTION OF THE SELECTED CHARACTERISTICS. THE DRIVE WORKLOAD IS REALIZED BY USING A SYNTHETIC PROGRAM THAT CONTAINS MANY PARAMETERS. EXPERIMENTS WERE PERFORMED TO CALIBRATE THE SYNTHETIC PROGRAM. EQUATIONS ARE DERIVED TO RELATE THE SYNTHETIC PROGRAM PARAMETERS WITH THE SELECTED WORKLOAD CHARACTERISTICS. BY ADJUSTING THESE PARAMETERS ANY DESIRED COMBINATION OF WORKLOAD CHARACTERISTICS CAN BE OBTAINED. USING THIS PROCEDURE A SYNTHETIC WORKLOAD WITH EIGHTY-EIGHT JOBS IS CONSTRUCTED TO REPRESENT A MONTH'S WORKLOAD CONSISTING OF ABOUT 6000 JOBS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 769 874 17/9 9/2
GENERAL DYNAMICS FORT WORTH TEX CONVAIR AEROSPACE DIV

GENERALIZED MULTIMODE RADAR SYSTEM
SIMULATION MODEL. VOLUME I. TECHNICAL
DESCRIPTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 206P HANCOCK, ROBERT J. ;
CONTRACT: F30602-72-C-0303
MONITOR: RADC TR-73-273-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, PART 1, AD-
769 875.

DESCRIPTORS: *COMPUTER PROGRAMMING, MULTIMODE,
DIGITAL SIMULATION, MODELS, COMPUTERIZED
SIMULATION, RADAR TRACKING, DETECTION, RADAR
TARGETS, RADAR CLUTTER, DIGITAL COMPUTERS, PHASE
ARRAYS, TARGET DISCRIMINATION, ENVIRONMENTS,
FORTRAN, SIGNAL PROCESSING

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE PURPOSE WAS TO DEVELOP A GENERALIZED MULTIMODE
RADAR/TARGET/CLUTTER DIGITAL COMPUTER SIMULATION
MODEL TO AID RADC ENGINEERS IN EVALUATING THE
TARGET DETECTION AND TRACKING CAPABILITY OF RADAR
SYSTEMS IN VARIOUS ENVIRONMENTS AND AGAINST DIFFERENT
TARGETS. THE DIGITAL COMPUTER SIMULATION MODEL WAS
IMPLEMENTED ON THE RADC HIS-645 DIGITAL COMPUTER
SYSTEM IN FORTRAN IV LANGUAGE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 769 875 17/9 9/2
GENERAL DYNAMICS FORT WORTH TEX CONVAIR AEROSPACE DIV

GENERALIZED MULTIMODE RADAR SYSTEM
SIMULATION MODEL. VOLUME II, PART I.
COMPUTER PROGRAM DOCUMENTATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 261P HANCOCK, ROBERT J. ;
CONTRACT: F30602-72-C-0343
MONITOR: RADC TR-73-273-VOL-2-PT-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-769 874 AND
VOLUME 2, PART 2, AD-769 876.

DESCRIPTORS: *RADAR, *COMPUTER PROGRAMS,
MULTIMODE, DIGITAL SIMULATION, MODELS,
COMPUTERIZED SIMULATION, DIGITAL COMPUTERS,
SUBROUTINES, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE VOLUME OF THE FINAL TECHNICAL REPORT CONTAINS
THE DESCRIPTIONS OF THE COMPUTER PROGRAMS AND
SUBPROGRAMS WHICH CONSTITUTE THE MULTIMODE RADAR
SYSTEM SIMULATION MODEL.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 769 876 17/9 9/2
GENERAL DYNAMICS FORT WORTH TEX CONVAIR AEROSPACE DIV

GENERALIZED MULTIMODE RADAR SYSTEM
SIMULATION MODEL. VOLUME II PART II.
SIMULATION LOAD MODULE FLOW CHARTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 132P HANCOCK, ROBERT J. ;
CONTRACT: F30602-72-C-0393
MONITOR: RADC TR-73-273-VOL-2-PT-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2 PART 1, AD-769
875 AND VOLUME 1, AD-769 874.

DESCRIPTORS: *COMPUTER PROGRAMMING, RADAR,
FORTRAN, MULTIMODE, DIGITAL SIMULATION, MODELS,
COMPUTERIZED SIMULATION, COMPUTER PROGRAMMING,
DIGITAL COMPUTERS, FLOW CHARTING
IDENTIFIERS: *FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE DIGITAL COMPUTER SIMULATION MODEL WAS
IMPLEMENTED ON THE RADC HIS-645 DIGITAL COMPUTER
SYSTEM IN FORTRAN IV LANGUAGE. (MODIFIED
AUTHOR ABSTRACT)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 770 073 1777 9/2
AEROSPACE SYSTEMS INC BURLINGTON MASS

NORTH ATLANTIC (NAT) AIDED INERTIAL
NAVIGATION SYSTEM SIMULATION. VOLUME II.
COMPUTER PROGRAM NATNAV USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-JAN 73,
JUL 73 147P HOFFMAN, WILLIAM C. ;BOWIE,
KATHRYN G. ;
CONTRACT: DOT-TSC-473
MONITOR: FAA-RD:TSC 73-112-VOL-2, FAA-73-23-
VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-770 072.

DESCRIPTORS: *INERTIAL NAVIGATION, *AIR TRAFFIC
CONTROL SYSTEMS, *COMPUTER PROGRAMS, COMPUTERIZED
SIMULATION, INSTRUCTION MANUALS, HYBRID SYSTEMS,
AIR TRAFFIC, ATLANTIC OCEAN, ERRORS, RADIO
NAVIGATION, DOPPLER NAVIGATION, DOPPLER RADAR,
KALMAN FILTERING, FORTRAN (U)

IDENTIFIERS: NORTH ATLANTIC AIR TRAFFIC, NATNAV
COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE,
CDC 3600 COMPUTERS (U)

A USER'S MANUAL IS PROVIDED FOR PROGRAM NATNAV
(NORTH ATLANTIC NAVIGATION), A DIGITAL
COMPUTER SIMULATION PROGRAM DEVELOPED TO EVALUATE THE
PERFORMANCE OF NAVIGATION SYSTEMS FOR FUTURE
COMMERCIAL NAT AIRCRAFT OPERATIONS. ERROR MODELS
FOR AIDED-INERTIAL NAVIGATION SYSTEMS WITH EXTERNAL
MEASUREMENTS FROM DOPPLER RADAR, OMEGA,
SATELLITE-RANGING OR AIR DATA ARE SIMULATED.
(MODIFIED AUTHOR ABSTRACT) (U)

AD-A036 500

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
FORTRAN 4 PROGRAMMING LANGUAGE.(U)
FEB 77

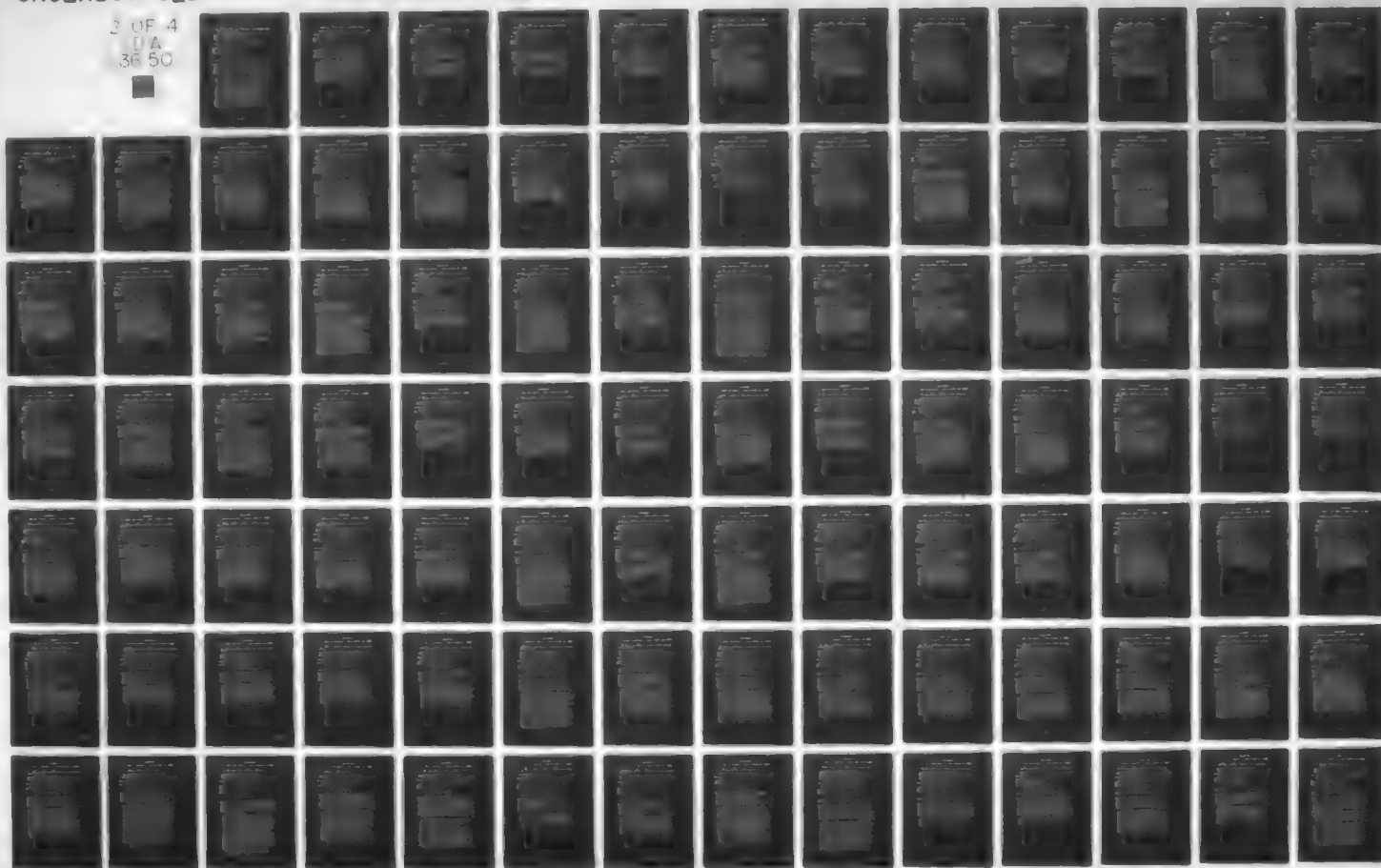
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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 770 169 20/4 9/2
VIRGINIA POLYTECHNIC INST AND STATE UNIV BLACKSBURG DEPT
OF AEROSPACE ENGINEERING

INVISCID SUPERSONIC NONUNIFORM FLOWS OVER
SHARP AND SPHERICALLY BLUNTED CONES AT
ANGLE OF ATTACK. VOLUME II. COMPUTER
PROGRAM DESCRIPTIONS AND USER'S GUIDE.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 SEP 69-1 DEC 72,
AUG 73 145P BALCK, ROIE R. LEWIS, CLARK
H. I

CONTRACT: F33615-70-C-1015
PROJ: AF-7064
TASK: 706403
MONITOR: ARL 73-0124-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-768 966.

DESCRIPTORS: *INVISCID FLOW, *SUPERSONIC FLOW,
*THREE DIMENSIONAL FLOW, *COMPUTER PROGRAMS,
*CONICAL BODIES, BLUNT BODIES, ANGLE OF ATTACK,
TWO DIMENSIONAL FLOW, INSTRUCTION MANUALS, NOSE
CONES, FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, IBM
370/155 COMPUTERS

(U)

A SYSTEM OF SIX COMPUTER PROGRAMS WHICH MAY BE
ARRANGED INTO SEVERAL PROGRAM PACKAGES FOR THE
PURPOSE OF SOLVING INVISCID FLOW FIELDS OVER SHARP
AND SPHERICALLY BLUNTED CONES AT ANGLE OF ATTACK IN
BOTH UNIFORM AND NONUNIFORM SUPERSONIC FREE STREAMS
HAS BEEN DEVELOPED. THESE PROGRAMS ARE WRITTEN IN
STANDARD FORTRAN 4 AND ARE CURRENTLY BEING RUN ON
THE VIRGINIA POLYTECHNIC INST. AND STATE
UNIVERSITY IBM 370/155 COMPUTER. THE SIX
PROGRAMS INCLUDE A MODIFIED INVERSE BLUNT BODY
SOLUTION PROGRAM, A MODIFIED AXISYMMETRIC METHOD OF
CHARACTERISTICS PROGRAM, A MODIFIED THREE-DIMENSIONAL
METHOD OF CHARACTERISTICS PROGRAM, TWO SHARP CONE
ZERO AND NONZERO ANGLE OF ATTACK UNIFORM FLOW
SOLUTION PROGRAMS, AND A MASTER DATA INPUT CONTROL
PROGRAM WHICH READS INPUT DATA AND PASSES INFORMATION
TO THE OTHER PROGRAMS. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 770 882 17/1
GENERAL ELECTRIC CO SYRACUSE N Y ELECTRONICS LAB
DIGITIZING HOLOGRAPHIC DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT. 11 AUG 72-30 SEP 73,
NOV 73 73P NELLIGAN, JOHN D. ;
CONTRACT: N00024-73-C-1047
PROJ: SF11-121
TASK: SF11-121-202, 16130

UNCLASSIFIED REPORT

DESCRIPTORS: *SONAR TRANSDUCERS, *HOLOGRAPHY,
*SIGNAL PROCESSING, VIBRATION, INTERFEROMETERS,
DIGITAL SYSTEMS (U)
IDENTIFIERS: INTERFEROMETRIC HOLOGRAPHY, FORTRAN 4
PROGRAMMING LANGUAGE, GE-635 COMPUTERS, AN/SQS-
23 (U)

TIME AVERAGE HOLOGRAPHIC INTERFEROGRAMS OF A 5 X
5 ARRAY OF AN/SQS-23 ACTIVE SONAR TRANSDUCER
ELEMENT WERE SUBJECTED TO DIGITAL PROCESSING IN AN
EFFORT TO EXTRACT AMPLITUDES OF VIBRATION AS A
FUNCTION OF FACE LOCATION. THE DEGREE OF
ADDITIONAL NOISE IMPUTED TO THE DATA BY THE
INTERMEDIATE TRANSPARENCY TOGETHER WITH THE LACK OF A
STATIC INTERFEROGRAM FOR REFERENCE PURPOSES RENDERS
THE EXTRACTION OF FRINGE LOCI BY GLOBAL DOUBLE
THRESHOLD TECHNIQUES IMPRACTICABLE.
RECOMMENDATIONS FOR SUCCESSFUL EXTRACTION ARE
PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 770 977 17/6 22/4 9/2
MITRE CORP BEDFORD MASS

COMPUTER SIMULATION OF A GROUND-BASED
ELECTRO-OPTICAL SENSOR SYSTEM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 73 86P JACOBUS, R. W. ;
REPT. NO. MTR-2556
CONTRACT: F19628-73-C-0001
PROJ: AF-6290
MONITOR: ESD TR-73-267

UNCLASSIFIED REPORT

DESCRIPTORS: *SPACE SURVEILLANCE SYSTEMS,
*COMPUTERIZED SIMULATION, DETECTORS,
ELECTROOPTICS, MOVING TARGET INDICATORS, SIGNAL
PROCESSING, FORTRAN, TRACKING TELESCOPES
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, IBM
360/155 COMPUTER

(U)

(U)

THE DOCUMENT DESCRIBES A COMPUTER SIMULATION OF A
GROUND-BASED ELECTRO-OPTICAL SENSOR SYSTEM WHOSE
MISSION IS THE SURVEILLANCE OF OBJECTS IN DEEP SPACE.
THE SIGNAL-PROCESSING ASPECTS OF THE PROBLEM, AND
PARTICULARLY THE ELIMINATION OF THE STELLAR
BACKGROUND AGAINST WHICH THE TARGETS ARE SEEN, ARE
STRESSED IN THE SIMULATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 129 9/2
NORTH CAROLINA STATE UNIV RALEIGH DEPT OF ELECTRICAL
ENGINEERING

ON STATE ASSIGNMENT AND REALIZATION OF
SEQUENTIAL MACHINES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 ASP GUPTA, SUBHASH C. ;
REPT. NO. TR-4
CONTRACT: DA-ARO-D-31-124-72-G65
MONITOR: AROD 10196:4-RT

UNCLASSIFIED REPORT

DESCRIPTORS: *LOGIC CIRCUITS, *MATHEMATICAL LOGIC,
*COMPUTER PROGRAMMING, GATES(CIRCUITS),
SWITCHING CIRCUITS, BOOLEAN ALGEBRA, FORTRAN (U)
IDENTIFIERS: *SEQUENTIAL MACHINES, *LOGIC DESIGN,
FLIP FLOPS, FORTRAN 4 PROGRAMMING LANGUAGE, IBM
370/165 COMPUTERS, *SWITCHING THEORY, ASYNCHRONOUS
SEQUENTIAL CIRCUITS (U)

THE DESIGN OF MINIMAL COST SYNCHRONOUS SEQUENTIAL
MACHINES IS ACHIEVED BY AUTOMATING THE STATE
ASSIGNMENT PROCEDURE, THE SOLUTION OF THE SEQUENTIAL
MACHINE USING THE NEXT STATE TABLE AND THE STATE
ASSIGNMENT CHOSEN, AND FINALLY, THE OPTIMIZATION OF
THE SOLUTION. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 130 9/2
NORTH CAROLINA STATE UNIV RALEIGH DEPT OF ELECTRICAL
ENGINEERING

A PROGRAM FOR LOWER BOUND OF LOGIC AND
STATE ASSIGNMENTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 73 48P GUPTA, SUBHASH C. ;
REPT. NO. TR-3
CONTRACT: DA-ARO-D-31-124-72-G65
MONITOR: AROD 10146:3-RT

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *LOGIC CIRCUITS,
MATHEMATICAL LOGIC, GATES(CIRCUITS),
MATHEMATICAL MODELS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, IBM
370/165 COMPUTERS, STAP COMPUTER PROGRAM, *LOGIC
DESIGN, SEQUENTIAL MACHINES,
PARTITIONS(MATHEMATICS), SWITCHING THEORY

(U)

(U)

THE REPORT DESCRIBES A COMPUTER PROGRAM, PROGRAM
STAP, WHICH CALCULATES THE LOWER BOUND OF LOGIC
REQUIRED AND GIVES A STATE ASSIGNMENT APPROACHING
THIS LIMIT FOR A COMPLETELY SPECIFIED SYNCHRONOUS
MACHINE. THE PROGRAM WAS IMPLEMENTED IN FORTRAN
4 ON THE IBM 370/165 COMPUTER. THE PROCEDURES
USED AND TEST EXAMPLES ARE GIVEN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 140 1/3
ARMY MATERIEL SYSTEMS ANALYSIS AGENCY ABERDEEN PROVING
GROUND MD

HELICOPTER WEIGHT, SIZE, AND PERFORMANCE
PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 57P KOCH, GEORGE W. ;
REPT. NO. AMSAA-TR-65
PROJ: RDT/E-1-T-665706-M-541

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *COMPUTERIZED SIMULATION,
FORTRAN, FLIGHT PATHS, WEIGHT, MATHEMATICAL
MODELS, AERODYNAMIC CHARACTERISTICS, GROUND EFFECT,
HOVERING
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
COMPUTER AIDED ANALYSIS

(U)

(U)

THE REPORT PORTRAYS AN ANALYSIS METHOD WHICH WAS
DEVELOPED FOR DETERMINING THE WEIGHT, SIZE, AND
PERFORMANCE OF HELICOPTERS. THE ANALYSIS METHOD
WAS PROGRAMMED IN FORTRAN IV FOR USE ON A HIGH
SPEED DIGITAL COMPUTER (BRLESC). THE PROGRAM WAS
SPECIFICALLY DEVELOPED FOR TRENDING AND COMPARISON
PURPOSES. THERE ARE SIXTEEN HELICOPTER
CHARACTERISTICS, SUCH AS, SPEED, RANGE, PAYLOAD, DISC
LOADING, BLADE SOLIDITY, PASSIVE DEFENSE FEATURES,
ETC., WHICH CAN BE VARIED IN ORDER TO GIVE INSIGHT
INTO THEIR EFFECTS ON THE WEIGHT, SIZE, AND
PERFORMANCE OF HELICOPTERS. ALL OF THE
CHARACTERISTICS ARE COORDINATED SO THAT THE EFFECT OF
THEM ON EACH OTHER CAN BE EXAMINED IN CONTEXT.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 296 15/7 19/3 9/2
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA SYSTEMS
EVALUATION DIV

TANK EXCHANGE MODEL. VOLUME II. USER'S
MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 73 232P GRAVES, JAMES W. ;
REPT. NO. P-916-VOL-2
CONTRACT: DAHC15-73-C-0200
MONITOR: IDA/HQ 73-15412

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-771 297.

DESCRIPTORS: *TANKS(COMBAT VEHICLES), *WAR
GAMES, FORTRAN, VULNERABILITY, LETHALITY, KILL
PROBABILITIES, FIRE CONTROL SYSTEMS, MONTE CARLO
METHOD, COMPUTERIZED SIMULATION

(U)

IDENTIFIERS: TANK EXCHANGE MODEL, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6400 COMPUTERS

(U)

THE REPORT IS PRESENTED IN TWO VOLUMES. VOLUME
I IS A BRIEF OVERVIEW OF THE TANK EXCHANGE
MODEL (TXM). THE CAPABILITIES AND LIMITATIONS
OF THE MODEL ARE DESCRIBED TO ENABLE A POTENTIAL USER
TO DETERMINE IF THE TXM MEETS HIS REQUIREMENTS.
IN VOLUME 2 THE INPUTS AND OUTPUTS ARE DEFINED IN
DETAIL. INSTRUCTIONS FOR RUNNING THE MODEL ARE
GIVEN, AND THE FUNCTION OF EACH ROUTINE OF THE MODEL
IS DESCRIBED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 297 15/7 19/3 9/2
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA SYSTEMS
EVALUATION DIV

TANK EXCHANGE MODEL. VOLUME 1. GENERAL
MODEL DESCRIPTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 73 25P GRAVES, JAMES W. I
REPT. NO. P-916-VOL-1
CONTRACT: DAHC15-73-C-0200
MONITOR: IDA/HQ 72-14628

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-771 296.

DESCRIPTORS: *TANKS(COMBAT VEHICLES), *WAR
GAMES, FORTRAN, VULNERABILITY, LETHALITY, KILL
PROBABILITIES, FIRE CONTROL SYSTEMS, MONTE CARLO
METHOD, COMPUTERIZED SIMULATION

(U)

IDENTIFIERS: TANK EXCHANGE MODEL, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6400 COMPUTERS

(U)

THE PRIMARY PURPOSE OF THE TANK EXCHANGE
MODEL (TXM) IS TO PROVIDE A METHODOLOGY TO
COMPARE TWO OR MORE TANKS IN TERMS OF VULNERABILITY
AND LETHALITY IN ENGAGEMENTS WITH OTHER TANKS AND
ANTITANK WEAPONS. THE TXM DOES NOT MAKE THIS
COMPARISON DIRECTLY, BUT PERMITS THE USER TO
SEPARATELY DETERMINE THE EFFECTIVENESS OF BOTH TANKS
IN A RANGE OF SITUATIONS. ALTHOUGH THE RANGE OF
SITUATIONS IS LIMITED IT IS BELIEVED TO BE SUFFICIENT
TO PROVIDE REALISTIC COMPARISONS.

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 416 1/3 9/2 15/5
KETRON INC WAYNE PA

INTEGRATED MAINTENANCE AND READINESS DATA
PROCESSING FOR THE CASEE SIMULATION MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 26P HERONEY, WILLIAM A. TEMPLE,
MICHAEL G. ;
REPT. NO. KTR-655-1
CONTRACT: N62269-72-C-0924

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT MAINTENANCE, *COMPUTER
PROGRAMMING, OPERATIONAL READINESS, FORTRAN, DATA
PROCESSING (U)

IDENTIFIERS: CDC 6600 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE, CASEE COMPUTER PROGRAM (U)

THE DOCUMENT DESCRIBES, AND GIVES USER INSTRUCTIONS
FOR, TWO PROGRAMS DEVELOPED BY KETRON TO PROVIDE
AIRCRAFT READINESS AND PART AVAILABILITY DATA FOR THE
CASEE SIMULATION MODEL. THESE PROGRAMS HAVE BEEN
DEVELOPED AND TESTED ON A CDC 6600 WITH 64K WORDS
OF CORE. THEY ARE CODED IN FORTRAN 4, WITH THE
EXCEPTION OF COMPASS SUBROUTINES USED TO READ THE
3-M HAF AND READY TAPES. CONVERSION OF THE
FORTRAN CODE TO A PROGRAMMING ENVIRONMENT WHERE
THESE TAPES COULD BE READ DIRECTLY IN FORTRAN
(E.G., IBM SYSTEM 360 OS), WOULD ELIMINATE THE
NEED FOR THE ASSEMBLY LANGUAGE SUBROUTINES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 585 18/3 15/6 9/2
INDUSTRIAL NUCLEONICS CORP COLUMBUS OHIO

NUCLEAR DEBRIS ATTACHMENT TO AIRCRAFT DUE
TO ATMOSPHERIC RADIATION ENVIRONMENTS, PART
II. AIRCRAFT IMPACTION AND ADHESION
COMPUTER MODEL. (U)

DESCRIPTIVE NOTE: FINAL REPT. DEC 70-OCT 72,
OCT 72 140P PERLEY, WARD B. IPFEIFER,
ROBERT J. ;
CONTRACT: F33615-71-C-1102
PROJ: AF-8222
TASK: 822213
MONITOR: AFFDL TR-71-117-PT-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART I, AD-771 584.

DESCRIPTORS: *NUCLEAR WEAPON DEBRIS, *AIRCRAFT,
*RADIOACTIVE CONTAMINATION, *AVIONICS, *COMPUTER
PROGRAMS, COMPUTERIZED SIMULATION, NUCLEAR
EXPLOSIONS, COMPUTATIONS, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE REPORT DESCRIBES IN DETAIL THE CLOUDRISE AND
SLURRY/PASS PROGRAMS FOR USERS OF THE CODES.
THESE CODES WERE DEVELOPED TO AID ANALYTIC STUDIES
OF THE CONTAMINATION ACQUIRED BY AN AIRCRAFT WHICH
FLIES THROUGH A NUCLEAR DEBRIS CLOUD, AS EXPLAINED IN
PART I, GENERAL STUDIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 772 733 4/1 9/2
ATLANTIC SCIENCE COMP INDIALANTIC FLA

DOCUMENTATION AND DESCRIPTION OF THE BENT
IONOSPHERIC MODEL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 208P LLEWELLYN, SIGRID K. BENT,
RODNEY B. ;
CONTRACT: F04701-73-C-0207
PROJ: AF-9600
TASK: 866601
MONITOR: AFCRL, SAMS0 TR-73-0657, TR-73-252

UNCLASSIFIED REPORT

DESCRIPTORS: *IONOSPHERE, *ATMOSPHERE MODELS,
*COMPUTER PROGRAMS, FORTRAN, ELECTRON DENSITY,
RADIO TRANSMISSION, ATMOSPHERIC REFRACTION
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, ION
COMPUTER PROGRAM, TABGEN COMPUTER PROGRAM, ION I
COMPUTER PROGRAM

(U)

(U)

THE REPORT DOCUMENTS THE COMPUTER PROGRAMS OF THE
BENT IONOSPHERIC MODEL AND BRIEFLY DESCRIBES
THE DEVELOPMENT OF THE MODEL. THE FORTRAN
PROGRAM IS DESIGNED FOR GENERAL USE AND CAN
GENERATE IONOSPHERIC DATA ON A WORLD-WIDE BASIS FOR
ANY PAST OR FUTURE DATE. FOR A GIVEN CONDITION
CONSISTING OF STATION, SATELLITE AND TIME
INFORMATION, THE ELECTRON DENSITY VERSUS HEIGHT
PROFILE IS COMPUTED FROM WHICH RANGE, RANGE RATE, AND
ANGULAR REFRACTION CORRECTIONS AS WELL AS VERTICAL
AND ANGULAR TOTAL ELECTRON CONTENT ARE OBTAINED.
THE MODEL HAS THE ADDITIONAL CAPABILITY OF
IMPROVING ITS PREDICTIONS BY UPDATING WITH ACTUAL
IONOSPHERIC OBSERVATIONS. CONSIDERABLE TESTS IN
THE PAST HAVE PROVED THIS EMPIRICAL MODEL HIGHLY
SUCCESSFUL. ALSO INCLUDED IN THE DOCUMENTATION IS
AN ALTERNATE VERSION OF THE IONOSPHERIC PROGRAM TO BE
USED WHEN STRINGENT SPACE AND TIME REQUIREMENTS ARE
IMPOSED BY THE OPERATING SYSTEM. HOWEVER, SEVERAL
OPTIONS OF THE STANDARD PROGRAM ARE NOT INCORPORATED
AND THE ACCURACY OF THE RESULTS IS SOMEWHAT REDUCED.
(AUTHOR)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 114 9/2 8/10 17/1
WOODS HOLE OCEANOGRAPHIC INSTITUTION MASS

THE ACODAC DATA PROCESSING SYSTEM. VOLUME
1.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

SEP 73 164P TOLLIOS, CONSTANTINE D. ;

REPT. NO. WHOI-73-59

CONTRACT: N00014-71-C-0057

PROJ: NR-292-047

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA PROCESSING, *UNDERWATER SOUND,
AMBIENT NOISE, MOORING BUOYS, HYDROPHONES,
ACOUSTIC ARRAYS, ANALOG TO DIGITAL CONVERTERS,
COMPUTER PROGRAMMING, FORTRAN

(U)

IDENTIFIERS: ACODAC SYSTEM, DATA PROCESSING
SYSTEMS, ACOSTAT COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, SIGMA 7 COMPUTERS, MOST
PROJECT-3, MOST PROJECT-3

(U)

THE REPORT DESCRIBES THE METHODS AND COMPUTER
PROGRAMS EMPLOYED IN THE PROCESSING OF AMBIENT NOISE
DATA RESULTING FROM THE DEPLOYMENT OF ACOUSTIC
DATA CAPSULES DURING THE PERIOD OF 1971 TO 1973.
IT SUMMARIZES THE TECHNIQUES AND PROGRAMS USED TO
ANALYZE THIRD OCTAVE AMBIENT NOISE, AND NARROW BAND
FREQUENCY SPECTRA, AS WELL AS HIGH SPEED ANALOG-TO-
DIGITAL PROCESSING. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 422 9/7 14/5
AIR FORCE ARMAMENT LAB EGLIN AFB FLA

COMPUTER ANIMATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-JUN 73.
AUG 73 18JP FELDMAN, LAWRENCE A. ;
REPT. NO. AFATL-TR-73-174
PROJ: AF-2543
TASK: 254302

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, PHOTOGRAPHIC
IMAGES, PICTURES, DATA PROCESSING, FORTRAN
IDENTIFIERS: *COMPUTER ANIMATION, COMPUTER
GENERATED MOTION PICTURES, CDC 6600 COMPUTERS,
FORTRAN 4 PROGRAMMING LANGUAGE, OBJECT COMPUTER
PROGRAM, ACTION COMPUTER PROGRAM

(U)

(U)

TWO FORTRAN 4 COMPUTER PROGRAMS WERE WRITTEN FOR
CONVERTING PHOTOGRAPHIC DATA AND PICTURES TO COMPUTER
OUTPUT. ALTHOUGH THE REPORT CONCENTRATES ON
AIRPLANES, ALL INANIMATE OBJECTS CAN BE REPRODUCED.
LISTINGS OF BOTH PROGRAMS, INCLUDING INPUT AND
OUTPUT DATA, ARE CONTAINED IN THIS REPORT. IN
ADDITION, PROCEDURES FOR GENERATING OTHER OBJECTS ON
THE COMPUTER ARE DISCUSSED IN DETAIL. THE PROGRAM
IS CONFINED TO TWO-DIMENSIONAL VIEWS AND DOES NOT
CONSIDER OBLIQUE PERSPECTIVES. THE PROGRAMS WERE
DEVELOPED AS A VISUAL AID IN SUPPORT OF ANALYTIC
PRESENTATIONS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 552 8/8

LOUISIANA STATE UNIV BATON ROUGE COASTAL STUDIES INST

A STUDY OF BEACH GROUND-WATER HYDROLOGY
AND CHEMISTRY.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 73 98P DOMINICK, THOMAS F. ; WILKINS,
BERT, JR. ; ROBERTS, HARRY H. ; HO, CLARA L. ;

REPT. NO. TR-152

CONTRACT: N00014-69-A-0211-0003

PROJ: NK-388-002

UNCLASSIFIED REPORT

DESCRIPTORS: *BEACHES, *GROUND WATER, MATHEMATICAL
MODELS, TIDES, WATER CHEMISTRY, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: GRAND CAYMAN ISLAND, BFLO
COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE MEASUREMENT OF CHANGING WATER LEVELS ACROSS A
TROPICAL CARBONATE BEACH PROFILE OVER THREE TIDAL
CYCLES HAS PROVIDED BASIC DATA USED TO SUBSTANTIATE A
PREDICTIVE MATHEMATICAL MODEL OF FLUCTUATION IN LEVEL
OF A BEACH WATER TABLE. THE MODEL WAS DEVELOPED
FROM NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS
GOVERNING TRANSIENT, ONE-DIMENSIONAL MOVEMENT OF
GROUND WATER THROUGH POROUS MEDIA. A FINITE-
DIFFERENCE ALGORITHM FOR A DIGITAL COMPUTER WAS
DEVELOPED TO SOLVE THE EQUATIONS. BEACH
HOMOGENEITY AND NONLINEAR BOUNDARY CONDITIONS IMPOSED
BY TIDAL FLUCTUATIONS WERE ASSUMED IN THESE
CALCULATIONS. A METHOD FOR IN SITU DETERMINATION
OF THE PERMEABILITY-POROSITY RATIO IS PROPOSED AND
DEMONSTRATED FOR THE BEACH STUDIED. THE
MATHEMATICAL MODEL OF THE BEACH WATER TABLE IS USED
TO DEVELOP AN ACCURATE METHOD OF CALCULATING INFLOW
AND OUTFLOW AT THE BEACH-OCEAN INTERFACE.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 769 9/1 9/2
CALIFORNIA UNIV LIVERMORE LAWRENCE LIVERMORE LAB

WAMP: A USERS MANUAL FOR THE WIRE ANTENNA
MODELING PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
DEC 73 110P DEADRICK, FRED J. MILLER,
EDMUND K. ;
REPT. NO. UCID-30084

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTENNAS, *COMPUTERIZED SIMULATION,
COMPUTER PROGRAMS, ANTENNA RADIATION PATTERNS,
INSTRUCTION MANUALS, FORTRAN
IDENTIFIERS: WAMP COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, *WIRE ANTENNAS

(U)

(U)

PROGRAM WAMP IS A WIRE ANTENNA MODELING
PROGRAM WRITTEN IN FORTRAN IV AND APPLICABLE TO
ARBITRARY ANTENNA AND SUPPORT STRUCTURES. WAMP
MODELS AN ANTENNA AS A SERIES OF INTERCONNECTED
STRAIGHT WIRE SEGMENTS, AND SOLVES THE
ELECTROMAGNETIC BOUNDARY VALUE PROBLEMS BY
NUMERICALLY EVALUATING AN ELECTRIC FIELD INTEGRAL
EQUATION. ANTENNAS MAY BE ANALYZED IN FREE SPACE,
OVER A PERFECT GROUND, A RADIAL GROUND SCREEN OR IN
THE PRESENCE OF ANY HOMOGENEOUS MEDIA. ANTENNA
INPUT IMPEDANCE, CURRENT DISTRIBUTIONS, NEAR-ELECTRIC
FIELDS AND FAR-FIELD RADIATION PATTERNS ARE ALSO
CALCULATED. THE USERS MANUAL COVERS BOTH THE THEORY
AND NUMERICAL TECHNIQUES EMPLOYED IN WAMP. THE
PROGRAM'S INPUT VARIABLES ARE DEFINED, AND
ILLUSTRATIVE EXAMPLES ARE USED TO DEMONSTRATE THE
PROGRAM'S CAPABILITIES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 774 296 20/11
MASSACHUSETTS INST OF TECH CAMBRIDGE AEROELASTIC AND
STRUCTURES RESEARCH LAB

LINEAR DYNAMIC ANALYSES OF LAMINATED PLATES
AND SHELLS BY THE HYBRID-STRESS FINITE-
ELEMENT METHOD.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 73 232P MAU, SHENG-TAUR IPIAN,
THEODORE H. H. I
REPT. NO. ASRL-TR-172-2
CONTRACT: DAAG46-73-C-0090
PROJ: DA-1-8-062113-A-661
MONITOR: AMMRC CTR-73-40

UNCLASSIFIED REPORT

DESCRIPTORS: *SHELLS(STRUCTURAL FORMS), *PLATES,
*STRESSES, COMPOSITE MATERIALS, LAMINATES,
STRUCTURAL PROPERTIES, THERMAL STRESSES, SHEAR
STRESSES, DEFORMATION, COMPUTER PROGRAMS,
GRAPHICS, CURVE FITTING, NUMERICAL INTEGRATION,
FORTRAN

(U)

IDENTIFIERS: *FINITE ELEMENT ANALYSIS, *STRUCTURAL
ANALYSIS, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

TWO METHODS OF ANALYZING LAMINATED- COMPOSITE,
LINEAR-ELASTIC PLATE AND SHELL STRUCTURES UNDER
TRANSIENT MECHANICAL AND/OR THERMAL LOADINGS HAVE
BEEN DEVELOPED BASED ON THE HYBRID-STRESS FINITE-
ELEMENT MODEL. THE COMPUTER CODES CORRESPONDING TO
THESE TWO METHODS WERE ALSO DEVELOPED AND TESTED.
BOTH PROGRAMS ARE CAPABLE OF TREATING THIN OR THICK
PLATES AND SHELL STRUCTURES. SHELLS WITH BRANCHES
AND CUTOUTS CAN BE TREATED. THE OUTPUTS OF THE
PRESENT COMPUTER PROGRAMS ARE DESIGNED SUCH THAT THEY
CAN BE EASILY ADAPTED TO ANY OF THE EXISTING CRITERIA
FOR THE STRENGTH OF LAMINATED COMPOSITES. A SURVEY
OF SUCH CRITERIA IS PRESENTED. (AUTHOR, MODIFIED-
PL)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 774 844 16/3 11/6 16/4-2
MARTIN MARIETTA AEROSPACE ORLANDO FLA

EVALUATION OF THE CONAP (CONTROLLED
ATMOSPHERIC PROTECTED SYSTEM) CONCEPT FOR
ADVANCED ABM NOSE TIPS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 24 OCT 72-24 OCT 73,
JAN 74 149P OSSIN, ARCHIE ; CANTON, DON

No. :

REPT. NO. OR-12840
CONTRACT: DAAG46-73-C-0053
PROJ: DA-1-W-162113-A-661
MONITOR: AMHRC CTR-74-1

UNCLASSIFIED REPORT

DESCRIPTORS: *NOSE TIPS, *ANTIMISSILE DEFENSE
SYSTEMS, *ABLATIVE MATERIALS, NOSE CONES, SURFACE
TO AIR MISSILES, COOLING, AMMONIA, HEAT TRANSFER,
TUNGSTEN, AERODYNAMIC HEATING, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE DOCUMENT REPORTS THE RESULTS OF A TWELVE MONTH
RESEARCH STUDY OF A TRANSPORTATION-COOLING SYSTEM
CONCEPT HAVING APPLICATION TO THE NOSE TIP AND
CONTROL SURFACE LEADING EDGES OF AN ADVANCED ABM.
THE CONCEPT USES A REACTIVE GAS COOLANT AND A HOT
WALL MATRIX. TESTING HAS BEEN CONDUCTED TO
DETERMINE THE PERMEABILITY AND INERTIAL RESISTANCE
COEFFICIENTS OF CANDIDATE REFRACTORY POROUS AND
DISCRETE HOLE MATRICES. TESTING WAS ALSO
CONDUCTED TO DETERMINE THE AMOUNT OF HEAT TRANSFERRED
FROM THE HOT MATRIX TO THE COOLANT GAS. THE
RESULTS SHOW THAT SYSTEM WEIGHT SAVINGS WOULD BE
REALIZED FROM USE OF THE CONAP CONCEPT WHEN
COMPARED TO A WATER SYSTEM. THE DATA TAKEN HAVE
BEEN CORRELATED WITH CURVE FITS AND USED TO CONDUCT
PRELIMINARY CONCEPT DESIGN ANALYSES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 091 9/1
SIGNATRON INC LEXINGTON MASS

ELECTRONIC DEVICE MODELING.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 2, 13 MAY-13 AUG
73,

JAN 74 199P EHRMAN, L. ;
CONTRACT: F30602-73-C-0193
MONITOR: RADC TR-73-407

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED DEC 73, AD-
774 551.

DESCRIPTORS: •TRANSISTORS, FIELD EFFECT TRANSISTORS,
BIPOLAR TRANSISTORS, ELECTROMAGNETIC COMPATIBILITY,
MODELS, COMPUTERIZED SIMULATION, COMPUTER
PROGRAMS, ELECTRONICS, NONLINEAR SYSTEMS,
ELECTRONIC EQUIPMENT, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE SOFTWARE FOR IMPLEMENTATION OF THE CHARGE-
CONTROL BIPOLAR TRANSISTORS MODEL AND THE MEANS FOR
OBTAINING THE PARAMETERS OF THE CHARGE-CONTROL
TRANSISTOR MODEL FROM EXPERIMENTAL MEASUREMENTS ARE
DEVELOPED. A COMPARISON OF PREDICTED AND MEASURED
NONLINEAR DISTORTION PRODUCTS BASED UPON SEVERAL
JUNCTION FIELD EFFECT TRANSISTORS IS REPORTED.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 324 16/2 9/2
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GUIDANCE AND
CONTROL DIRECTORATE

DIGITAL COMPUTER PROGRAMS FOR THE ANALYSIS OF
DIRECTIONALLY CONTROLLED MISSILES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 73 65P BROWN, W. CURTIS ;
REPT. NO. RG-73-33
PROJ: DA-1-M-262303-A-214

UNCLASSIFIED REPORT

DESCRIPTORS: *GUIDED MISSILE TRAJECTORIES, *COMPUTER
PROGRAMS, DIGITAL SIMULATION, CONTROL THEORY,
TERMINAL GUIDANCE, NUMERICAL ANALYSIS, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

IN THE SYSTEM ANALYSIS OF DIRECTIONALLY CONTROLLED
MISSILES, MUCH TIME IS SPENT DETERMINING THE SYSTEM
PARAMETERS TO GIVE AN OPTIMUM TRAJECTORY AND THE
DETERMINATION OF MISSILE ACCURACY. THE PURPOSE OF
THE REPORT IS TO DOCUMENT TWO DIGITAL SIMULATION
PROGRAMS, WRITTEN IN FORTRAN 4, WHICH WERE
DEVELOPED TO ACCOMPLISH THESE TASKS. THE REPORT IS
WRITTEN TO PROVIDE AS MUCH HELP AS POSSIBLE TO
PROSPECTIVE USERS AND WITH THE ASSUMPTION THAT THE
PROSPECTIVE USERS HAVE A THEORETICAL KNOWLEDGE OF
DIRECTIONALLY CONTROLLED MISSILE GUIDANCE AND CONTROL
SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 339 12/2
HARVARD UNIV CAMBRIDGE MASS DIV OF ENGINEERING AND
APPLIED PHYSICS

ALGORITHM FOR COMPUTING THE PARAMETERIZED
SOLUTION OF A FAMILY OF MINIMAX
PROBLEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 74 111P MURALIDHARAN, R. ;
REPT. NO. TR-650
CONTRACT: N00014-67-A-0298-0006, NSF-GK-31511
PROJ: MR-372-012

UNCLASSIFIED REPORT

DESCRIPTORS: MINIMAX TECHNIQUE, NONLINEAR
PROGRAMMING, CONVEX SETS, STEEPEST DESCENT METHOD,
THEOREMS, ALGORITHMS, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE REPORT DOCUMENTS THE RESEARCH DONE TO DEVELOP A
NEW ALGORITHM FOR COMPUTING THE PARAMETERIZED
SOLUTION TO A FAMILY OF MINMAX PROBLEMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 714 17/7 9/2
NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATLANTIC
CITY N J

METHODOLOGY AND COMPUTER ANALYSIS FOR
DETERMINING VOR/DME AND DME/DME AREA
NAVIGATION ERRORS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 70-SEP 73.
FER 74 74P SURENSEN, HARRY ;
REPT. NO. FAA-NA-73-91
PROJ: FAA-D44-326-000
MONITOR: FAA-RD 73-208

UNCLASSIFIED REPORT

DESCRIPTORS: *NAVIGATION, ERRORS, COMPUTER
PROGRAMS, VERY HIGH FREQUENCY, RADIO RANGES,
DISTANCE MEASURING EQUIPMENT, NAVIGATIONAL AIDS,
FORTRAN

(U)

IDENTIFIERS: VOR, FORTRAN 4 PROGRAMMING LANGUAGE,
IBM 7090 COMPUTERS

(U)

A COMPUTER ANALYSIS OF VOR/DME AND DME/DME
AREA NAVIGATION IS REPORTED. THE ANALYSIS INCLUDES
THREE-DIMENSION ERROR MODELS AND AN AUTOMATED METHOD
OF SELECTING THE OPTIMUM STATIONS TO SUPPORT AN AREA
NAVIGATION ROUTE STRUCTURE. IT IS CONCLUDED THAT
THE COMPUTER PROGRAM PRESENTED IS USEFUL FOR
DETERMINING OPTIMUM STATIONS TO SUPPORT AN AREA
NAVIGATION ROUTE. ADDITIONALLY, CERTAIN
SUBROUTINES CAN BE USED WITHOUT THE FULL ANALYSIS
PROGRAM TO PERFORM LINE-OF-SIGHT AND GEODETIC
CALCULATIONS. (AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 912 17/4 9/5
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

ADJUSTABLE DIGITAL TIME CONVERTER.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

FEB 74 130P KAUNZINGER, HELMUTH M. ;

RITTENBACH, OTTO E. ;

REPT. NO. ECOM-4201

PROJ: DA-1-S-662703-A-175

TASK: 1-S-662703-A-17508

UNCLASSIFIED REPORT

DESCRIPTORS: *SIGNAL PROCESSING, *MOVING TARGET
INDICATORS, RADAR SIGNALS, PROCESSING EQUIPMENT,
COMPRESSION, TIME, DIGITAL SYSTEMS, ANALOG TO
DIGITAL CONVERTERS, FREQUENCY CONVERSION, TARGET
RECOGNITION, TARGET SIGNATURES, COMPUTERIZED
SIMULATION, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: COMP COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE PRESENTATION COVERS THE ANALYSIS, COMPUTER
SOLUTION AND SIMULATION, DESIGN, CONSTRUCTION AND
PERFORMANCE EVALUATION OF AN EXPERIMENTAL DIGITAL
TIME CONVERTER WITH FIVE COMPRESSION RATIOS RANGING
FROM 3.16 TO 316 IN A GEOMETRIC PROGRESSION. WITH
AN ANALOG TO DIGITAL CONVERTER AT THE INPUT AND A
DIGITAL TO ANALOG CONVERTER AT THE OUTPUT, THIS TIME
CONVERTER OPERATES WITH DATA SAMPLES CIRCULATING IN
REGISTER RINGS. THE UPDATING OF THIS ROTATING
INFORMATION OCCURS AT SELECTED SLOW RATES WHILE
READOUT SAMPLES ARE TAKEN AT A CONSTANT FAST RATE.
THE ORIGINAL SEQUENCE OF INPUT SAMPLES IS PRESERVED
IN THE COMPRESSED OUTPUT WHEN A CORRECT RELATIONSHIP
EXISTS BETWEEN UPDATING AND READOUT RATES, GENERATED
IN APPROPRIATE TIMING CIRCUITS. THE COMPRESSED
SIGNAL IS PRESENTED IN SEGMENTS OF APPROXIMATELY .5
SECONDS EACH. THE PERFORMANCE EVALUATION SHOWS THAT
THE CHOSEN APPROACH IS VALID, THAT AN EXPERIMENTAL
MODEL WORKS AS EXPECTED, AND THAT SUBSEQUENT RADAR
SYSTEMS STUDIES CAN BE MADE WITH THIS TIME CONVERTER.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 972 15/5 9/2
GENERAL RESEARCH CORP MCLEAN VA OPERATIONS ANALYSIS
DIV

A METHODOLOGY FOR DEVELOPING ALTERNATIVE
CONSOLIDATION AND CONTAINERIZATION POINT
LOADING POLICIES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
FER 74 161P SCANGA, JOHN A. BILODEAU,
ARMAND A. KOCH, WILLIAM C. ;
REPT. NO. OAD-CR-29
CONTRACT: DAHC19-69-C-0017
PROJ: DA-10325

UNCLASSIFIED REPORT

DESCRIPTORS: *SUPPLY DEPOTS, *ARMY EQUIPMENT,
*LOGISTICS, MILITARY FACILITIES, INVENTORY
CONTROL, VANS, PALLETS, SPATIAL DISTRIBUTION,
COMPUTERIZED SIMULATION, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6400 COMPUTERS

(U)

THE REPORT EVALUATES ALTERNATIVE LOADING POLICIES
AND DISTRIBUTION PLANS FOR IMPLEMENTATION BY THE
NEW CUMBERLAND ARMY DEPOT CONSOLIDATION AND
CONTAINERIZATION POINT (CCP). A MODEL,
WRITTEN IN FORTRAN 4 AND CURRENTLY OPERATIONAL ON A
CONTROL DATA CORPORATION 6400, SIMULATING THE
CCP IS DESCRIBED. RESULTS OF ANALYSES OF MODEL
OUTPUTS AND OTHER DATA ARE ALSO PRESENTED IN THE
REPORT. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 777 135 4/1
EPSILON LABS INC BEDFORD MASS.

STRATOSPHERIC BALLOON AEROSOL PARTICLE
COUNTER MEASUREMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 2 FEB-30 NOV 73,
NOV 73 77P MIRANDA, HENRY A. , JR. ;
DULCHINOS, JOHN ; MIRANDA, HENRY P. ;
REPT. NO. FR-2001-73
CONTRACT: F19628-73-C-0138
PROJ: AF-7621
TASK: 762103
MONITOR: AFCRL TR-73-0700

UNCLASSIFIED REPORT

DESCRIPTORS: *AEROSOLS, *COUNTERS, *STRATOSPHERE,
*TROPOSPHERE, BALLOON EQUIPMENT, SAMPLERS,
PARTICLE SIZE, DISTRIBUTION, COMPUTER PROGRAMS,
FORTRAN (U)

IDENTIFIERS: PARTICLE SIZE DISTRIBUTION, FORTRAN 4
PROGRAMMING LANGUAGE, IBM 370/155 COMPUTERS,
PLOT1 COMPUTER PROGRAM, PULSE 2 COMPUTER PROGRAM,
DATRUN COMPUTER PROGRAM, CORNE 3 COMPUTER PROGRAM,
RATIO 1 COMPUTER PROGRAM (U)

A BALLOON-BORNE SUBMICRON AEROSOL COUNTER DEVELOPED
UNDER PREVIOUS AIR FORCE CONTRACTS WAS
SUCCESSFULLY FLOWN ON THREE STRATOSPHERIC BALLOON
EXPERIMENTS OVER HOLLoman AFB, NEW MEXICO IN
MAY OF 1973. THE RESULTS INDICATE THAT
PARTICULATE MATTER AT HIGHER LEVELS IS CHARACTERIZED
BY MARKEDLY DIFFERENT SCATTERING PARAMETERS THAN IS
THE CASE AT LOWER LEVELS. THIS EFFECT IS MANIFESTED
IN THE FORM OF EXCEEDINGLY SHARP CUT-OFFS IN THE SIZE
DISTRIBUTION AT ABOUT 0.4 MICROMETER DIAMETER, WHICH
IS ONLY OBSERVED ABOVE 23 KM. THE EXTENT TO WHICH
THIS SHARP CUT-OFF IS ATTRIBUTABLE EITHER TO
NONSPHERICAL PARTICLES OR TO INDEX OF REFRACTION
UNCERTAINTIES RATHER THAN TO THE ACTUAL SIZE
DISTRIBUTION, IS A MATTER OF CONJECTURE.
RECOMMENDATIONS FOR EQUIPMENT MODIFICATIONS TENDING
TO ELIMINATE THESE AMBIGUITIES, ARE DISCUSSED. ALSO
DESCRIBED HERE ARE THE SEVERAL HARDWARE AND SOFTWARE
MODIFICATIONS INCORPORATED IN THE SYSTEM UNDER THE
PRESENT CONTRACT IN PREPARATION FOR THESE FLIGHTS.
(AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 777 897 17/2-1 9/4
PHILCO-FORD CORP PALO ALTO CALIF WESTERN DEVELOPMENT LABS
DIV

PERFORMANCE OF SOFT LIMITING PSK AND DPSK
SPREAD SPECTRUM SYSTEMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-OCT 73,
FEB 74 192P JONES, J. J.; HUANG, J. Y.
; LEONG, W. K. S. ;
REPT. NO. WDL-TR-5417
CONTRACT: F30602-73-C-0075
PROJ: AF-4519
TASK: 451912
MONITOR: RADC TR-73-421

UNCLASSIFIED REPORT

DESCRIPTORS: *RADIO LINKS, SPREAD SPECTRUM,
RETRANSMISSION, PHASE SHIFT CIRCUITS, REPEATERS,
SATELLITE COMMUNICATIONS, ERRORS, PROBABILITY,
JAMMING, COMPUTERIZED SIMULATION, COMPUTER
PROGRAMS, DATA TRANSMISSION SYSTEMS, PULSE
COMMUNICATIONS, DIGITAL SYSTEMS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

AN ANALYTICAL STUDY AND INVESTIGATION IS CARRIED
OUT TO MODEL A PHASE-CODED SPREAD-SPECTRUM
COMMUNICATION SYSTEM CONTAINING A SOFT-LIMITING
SATELLITE REPEATER. USEFUL MATHEMATICAL
EXPRESSIONS ARE OBTAINED FOR THE BIT ERROR
PROBABILITY FOR BOTH COHERENT PSK AND DIFFERENTIAL
PSK BIPHASE DATA MODULATION COMBINED WITH PHASE-
CODED BIPHASE OR QUADRI PHASE SPREAD-SPECTRUM
MODULATION. A STUDY OF SOFT LIMITER MODELS IS
PERFORMED, RESULTING IN THE SELECTION OF THE ERROR
FUNCTION AMPLITUDE CHARACTERISTIC TO REPRESENT THE
SOFT-LIMITING REPEATER NONLINEARITY. THE ERROR
FUNCTION MODEL PROVIDES THE FLEXIBILITY TO REPRESENT
ALL DEGREES OF SOFT LIMITING FROM A LINEAR REPEATER
TO A HARD-LIMITER. INCLUDED IN THE STUDY ARE THE
EFFECTS OF BOTH UP-LINK AND DOWN-LINK NOISE AS WELL
AS CW JAMMING AT THE LIMITER INPUT. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 778 751 1/3 15/5
ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO

A COMPUTER MODEL FOR ECONOMIC ANALYSIS OF
ARMY AIRCRAFT RAM IMPROVEMENT PROPOSALS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 98P KASSOS, TONY ;
REPT. NO. USAAVSCOM-TR-74-19

UNCLASSIFIED REPORT

DESCRIPTORS: *ARMY AIRCRAFT, *ECONOMICS, LIFE
CYCLES, COST ANALYSIS, MAINTAINABILITY,
RELIABILITY, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: RAM(RELIABILITY AVAILABILITY
MAINTAINABILITY), RELIABILITY AVAILABILITY
MAINTAINABILITY, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE REPORT HAS BEEN PREPARED FOR PRESENTATION TO
THE JOINT AMC/TRADOC RAM SEMINAR SCHEDULED
FOR 4TH QUARTER, FY 1974, AT FT. LEE,
VIRGINIA. AR 702-3, ARMY MATERIAL
RELIABILITY, AVAILABILITY, AND MAINTAINABILITY
(RAM), 22 MARCH 73 PLACES INCREASED EMPHASIS ON
THE COST IMPACT OF RAM EFFORTS. THIS DIVISION
WAS INVITED BY THE SEMINAR SPONSORS TO DELIVER A
PRESENTATION ON AN ECONOMIC ANALYSIS MODEL DEVELOPED
HERE AND TO DISCUSS HOW IT COULD BE APPLIED TO RAM
COST STUDIES. THIS REPORT IS IN RESPONSE TO THIS
REQUEST. A COMPUTER MODEL IS PRESENTED FOR
PREPARING THE COST TRADE OFF STUDIES OF RAM EFFORTS
REQUIRED BY AR 702-3. THE MODEL IS SPECIFICALLY
DIRECTED TO RAM EFFORTS INVOLVING ARMY AIRCRAFT.
IT DETERMINES THE TOTAL LIFE CYCLE COST IMPACT OF A
RAM EFFORT AND PERTINENT RAM PARAMETERS. IT IS
A MODIFICATION OF THE ECONOMIC ANALYSIS MODEL
MENTIONED ABOVE AND IS A PRELIMINARY EFFORT TO
COMBINE THE METHODOLOGIES OF COST ANALYSIS AND
PRODUCT ASSURANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 778 774 19/1 19/6 21/2
CALSPAN CORP BUFFALO N Y

MATHEMATICAL MODEL OF CENTER CORE IGNITION
IN THE 175MM GUN.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 217P FISHER, EDWARD B. ; TRIPPE,
ANTHONY P. ;
REPT. NO. CALSPAN-VQ-5163-D-2
CONTRACT: DAAA21-72-C-0577

UNCLASSIFIED REPORT

DESCRIPTORS: *GUN BARRELS, *GUN PROPELLANTS,
INTERIOR BALLISTICS, FINITE DIFFERENCE THEORY,
COMBUSTION, EXPLOSIVE TRAINS, COMPUTERIZED
SIMULATION, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: 175-MM GUN, M-6 PROPELLANT, FORTRAN
4 PROGRAMMING LANGUAGE

(U)

(U)

A MATHEMATICAL MODEL OF THE 175MM GUN WAS
CONSTRUCTED FOR THE PURPOSE OF IDENTIFYING THE
RELATIVE SENSITIVITY OF VARIOUS PROPELLANT
PROPERTIES. THIS MODEL TREATS IGNITION, FLAME
SPREAD, COMBUSTION, AND PROPELLANT MOVEMENT WITH A
FINITE DIFFERENCE SOLUTION OF THE UNSTEADY EQUATIONS
OF FLUID AND PARTICLE MOTION. THE SOLUTION
INCLUDES REPRESENTATION OF THE CENTER CORE IGNITER
TUBE AND BLACK POWDER COMBUSTION IN ADDITION TO M6
PROPELLANT. THE SOLUTION ALSO INCLUDES AN UNSTEADY
ANALYSIS OF BARREL FLOW AND PROJECTILE MOTION, WHICH
IS CONCLUDED WHEN THE PROJECTILE PASSES FROM THE
BARREL. THE COMPLETE MODEL IS DESCRIBED IN
CALSPAN REPORT NO. VQ-5163-D-1 AND THIS
REPORT DISCUSSES SPECIFIC IMPROVEMENTS THAT WERE MADE
IN THE AREA OF CENTER CORE IGNITION.
(AUTHOR)

(U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 778 935 1777
NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATLANTIC
CITY N J

AUTOMATED RELIABILITY ASSESSMENT
PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. SEP 72-SEP 73,
APR 74 36P WOJCIECHOWICZ, JOHN J. ;
REPT. NO. FAA-NA-73-85
PROJ: FAA-121-101-070
MONITOR: FAA-RD 74-16

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR TRAFFIC CONTROL SYSTEMS,
*RELIABILITY, ASSESSMENT, AUTOMATION, FAILURE,
MAINTENANCE, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

AN AUTOMATED RELIABILITY ASSESSMENT PROGRAM (ARAP) WAS DEVELOPED FOR EVALUATION OF FEDERAL AVIATION ADMINISTRATION (FAA) EQUIPMENTS AND SYSTEMS. THE ARAP IS A SET OF PROCEDURES AND COMPUTER PROGRAMS USED TO REDUCE AND ANALYZE FAILURE/ MAINTENANCE DATA. IN ADDITION TO RELIABILITY PARAMETER ESTIMATION, RELATED FAILURE/MAINTENANCE CHARACTERISTICS ARE ANALYZED INCLUDING FAILURE MODES, MAINTENANCE MANHOURS, PART REPLACEMENT/FAILURE RATES, AND PART DISPOSITION. THE ARAP HAS BEEN IN OPERATION OVER THE PAST TWO YEARS AND SIGNIFICANT BENEFITS IN TERMS OF ASSESSMENT QUALITY, MANPOWER COST, AND COMPLETION TIME, HAVE BEEN DERIVED. IT IS RECOMMENDED IN THE REPORT THAT THE ARAP BE USED TO SUPPORT RELIABILITY/MAINTAINABILITY ACTIVITIES AT THE NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER (NAFEC) AND BE CONSIDERED FOR FAA-WIDE IMPLEMENTATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 461 15/3-1 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

MANMOD: A COMPUTER PROGRAM FOR STATISTICAL
ANALYSIS OF DYNAMICAL SYSTEMS INVOLVING MAN
AS A CONTROLLER. (U)

DESCRIPTIVE NOTES: FINAL REPT.,
FEB 74 166P HARON, SHELDON; BERLINER,
JEFFREY E. ;
REPT. NO. BRN-2704
CONTRACT: DAAH01-73-C-0526
PROJ: DA-1-M-262303-A-214
MONITOR: RD 74-4

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTIMISSILE DEFENSE SYSTEMS, *COMPUTER
PROGRAMS, *STATISTICAL ANALYSIS, MAN MACHINE
SYSTEMS, CONTROL THEORY, TRACKING, KALMAN
FILTERING (U)

IDENTIFIERS: MANMOD COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS (U)

MANMOD IS A DIGITAL COMPUTER PROGRAM THAT IS
DESIGNED TO PREDICT OPERATOR/SYSTEM RESPONSE DURING A
COMPENSATORY TRACKING TASK. THE PROGRAM IS
SPECIFICALLY TAILORED TO HANDLE MANNED OPERATION OF
MISSILE WEAPONS SYSTEMS, WHERE THE QUALITY AND NATURE
OF THE DISPLAYED INFORMATION, THE CHARACTERISTICS OF
PLATFORM AND/OR TARGET INDUCED MOTION, AND THE
OPERATOR RESPONSE STRATEGY CHANGE WITH TIME. THUS,
MANMOD CAN BE USED TO STUDY TIME-DEPENDENT EFFECTS,
SUCH AS DISTURBANCE VARIATIONS, INSTRUMENT
SWITCHOVERS, AND TEMPORARY LOSS OF THE OPTICAL TARGET
SIGNAL. IN ADDITION, THE INCORPORATION OF
DISPLAYED-RELATED THRESHOLD AND RESOLUTION
LIMITATIONS ALLOWS ONE TO STUDY, WITH REASONABLE
FIDELITY, THE EFFECTS OF INSTRUMENT MODIFICATION.
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 782 20/11
MASSACHUSETTS UNIV AMHERST DEPT OF CIVIL ENGINEERING

VIBRATIONS OF THIN PLATES--A NEW
APPROACH.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
DEC 73 158P TAI, J. H. INASH, WILLIAM
A. :

CONTRACT: AF-AFOSR-2340-72

PROJ: AF-9782

TASK: 978204

MONITOR: AFOSR TR-74-0789

UNCLASSIFIED REPORT

DESCRIPTORS: *PLATES, *VIBRATION, *ELASTIC
PROPERTIES, STRESSES, PARTIAL DIFFERENTIAL
EQUATIONS, EQUATIONS OF MOTION, NUMERICAL
INTEGRATION, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: *THIN PLATES, LAPLACE EQUATION,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE INVESTIGATION EXTENDS THE METHOD OF EDGE-
FUNCTIONS, PREVIOUSLY EMPLOYED ONLY FOR
ELASTOSTATIC AND ELECTROSTATIC CONSIDERATIONS, TO THE
DETERMINATION OF NATURAL FREQUENCIES AND ASSOCIATED
MODE SHAPES OF FREE VIBRATION OF THIN ELASTIC PLATES
WITH A VARIETY OF BOUNDARY CONDITIONS. THE EDGE-
FUNCTION TECHNIQUE ESSENTIALLY ASSOCIATES AN
INDEPENDENT COORDINATE SYSTEM WITH EVERY EDGE OF THE
PLATE, AND FOR EVERY EDGE EMPLOYS FUNCTIONS
(SATISFYING THE GOVERNING PLATE VIBRATION
EQUATIONS) THAT RAPIDLY DECAY WITH INCREASING
DISTANCE FROM THE PLATE BOUNDARY. APPROPRIATE
SUPERPOSITION OF SOLUTIONS STEMMING FROM ALL EDGES OF
THE PLATE LEADS TO AN APPROXIMATE REPRESENTATION OF
THE TIME-DEPENDENT DEFLECTION SURFACE. RESULTS
OBTAINED BY THE ELASTODYNAMIC EDGE-FUNCTION
INVESTIGATION ARE SHOWN TO BE IN EXCELLENT AGREEMENT
WITH EXISTING RESULTS FOR NATURAL FREQUENCIES AND
MODE SHAPES OF (A) RECTANGULAR PLATES SUBJECT TO
A WIDE VARIETY OF BOUNDARY CONDITIONS, INCLUDING THE
CASE OF A RECTANGULAR CANTILEVER PLATE, AND (B)
PARALLELOGRAM SHAPED PLATES WITH SIMPLY SUPPORTED
EDGES. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 835 1/3 17/8
WESTINGHOUSE ELECTRIC CORP BALTIMORE MD SYSTEMS
DEVELOPMENT DIV

COBRA GLINT MODEL AH-1G.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 156P DAUMIT, RICHARD H. ; GOODELL,
JOHN R. ; HIGBY, RICHARD F. ;
CONTRACT: DAAD05-72-C-0284
PROJ: LWL-06-P-72
MONITOR: LWL CR-U6P728

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *AIRCRAFT CANOPIES,
*GLINT, WINDOWS, SUNLIGHT, REFLECTIVITY,
COMPUTERIZED SIMULATION, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: HUEY COBRA, H-1 AIRCRAFT, AH-1G
AIRCRAFT, SUNSHADES, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

THE REPORT DETAILS THE DEVELOPMENT OF A COMPUTER
SIMULATION MODEL OF THE ATTACK HELICOPTER TO PREDICT
THE VISUAL DETECTIVITY OF THE AIRCRAFT BY A GROUND
OBSERVER DUE TO SUN REFLECTIONS FROM ITS WINDOWS.
IN ADDITION, THE MODEL WAS EXERCISED TO DETERMINE
PROBABILITIES OF DETECTION VERSUS ANGLES OF INCIDENT
SUNLIGHT AND ALSO USED TO DETERMINE SUNSHADE
CONFIGURATION FOR REDUCING REFLECTIONS. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 844 13/10 20/4
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA
MD

DIVERGENCE ANALYSIS OF SWEEP HYDROFOILS-
COMPUTER PROGRAM (SWDIVRG).

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 74 79P CASPAR, JOHN R. ;
REPT. NO. NSRDC-4245
PROJ: 64606, NSRDC-1153-003
TASK: 1703

UNCLASSIFIED REPORT

DESCRIPTORS: *HYDROFOIL CRAFT, *HYDROFOILS,
FORTRAN, BENDING MOMENTS, TORSION, LIFTING
SURFACES, HYDRODYNAMICS, MATHEMATICAL MODELS,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
SWDIVRG COMPUTER PROGRAM

(U)

A SYSTEMATIC APPROACH IS DESCRIBED BY WHICH
DIVERGENCE CHARACTERISTICS OF SWEEP OR UNSWEEP
HYDROFOILS MAY BE CALCULATED. THE COMPUTER
PROGRAM, CALLED SWDIVRG, DEVELOPED TO DO THE
CALCULATIONS MAKES USE OF A LUMPED-PARAMETER
APPROACH, RESULTING IN A MATRIX SOLUTION OF THE
SYSTEM. THE BENDING AND TORSIONAL DISPLACEMENTS ANY
OF N STATIONS ALONG THE HYDROFOIL SPAN CAN BE
CALCULATED AT SPEEDS LESS THAN DIVERGENCE. BENDING
AND TORSIONAL MOMENTS CAN BE CALCULATED FOR THE
CONDITION OF CANTILEVER-BEAM CONSTRAINTS. THE
DIVERGENCE SPEED IS PRINCIPALLY COMPUTED BY AN
EIGENVECTOR ITERATION SCHEME. A CONVENIENT
FORMULATION AND A PLOT ARE PROVIDED FOR ESTIMATING
THE HYDRODYNAMIC LOADING PARAMETERS FOR FINITE-SPAN,
SURFACE-PIERCING HYDROFOILS. ALSO, A USEFUL
CLOSED-FORM DIVERGENCE FORMULATION, WHICH CONSIDERS
SUBMERGENCE LEVEL, HAS BEEN DERIVED FOR THE SPECIAL
CASE OF A UNIFORM CANTILEVER STRUT OR FOIL. TEST
CALCULATIONS OF AIRFOIL MODELS AND ONE HYDROFOIL
MODEL, USING BOTH SWDIVRG AND THE CLOSED-FORM
SOLUTION, SHOW GOOD AGREEMENT WITH EXPERIMENTAL
MODEL-DIVERGENCE SPEEDS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 881 13/10 5/9 9/2
NAVAL TRAINING EQUIPMENT CENTER ORLANDO FLA

ASSAULT BOAT EQUATIONS COMPUTER
PROGRAMMING.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 74 57P SALTZMAN, HARVEY C. I
REPT. NO. NAVTRAEQUIPC-1H-219
PROJ: NAVTRAEQUIPCEN-1747-05

UNCLASSIFIED REPORT

DESCRIPTORS: *LANDING CRAFT, *SIMULATORS,
*COMPUTER PROGRAMMING, NAVAL PERSONNEL, NAVAL
TRAINING, AMPHIBIOUS OPERATIONS, TRAINING DEVICES,
DIGITAL SIMULATION, FORTRAN

(U)

IDENTIFIERS: LCM 6 VESSEL, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

A STUDY WAS CONDUCTED TO DEVELOP COMPUTER SOFTWARE
PERTINENT TO THE DEVELOPMENT OF A NAVY ASSAULT
BOAT COXSWAIN TRAINER. EXISTING EQUATIONS OF
AN LCM(6) (MEDIUM LANDING CRAFT) HAVE BEEN
COMBINED WITH A MATHEMATICAL REPRESENTATION OF A
WAVE-BEACH ENVIRONMENT IN A REAL-TIME DIGITAL
COMPUTER PROGRAM. THE STUDY USED A XEROX SIGMA
7 COMPUTER AT THE NAVAL TRAINING EQUIPMENT
CENTER CONNECTED TO A BOAT MOCKUP AND EXPERIMENTAL
VISUAL DISPLAY GENERATING HARDWARE. THE PROGRAM
PROVIDES A BASIS FOR STUDIES TO DETERMINE THE MOTION
AND VISUAL DISPLAY REQUIREMENTS OF AN ASSAULT BOAT
SIMULATOR. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 780 357 13/2 8/9 9/2
GENERAL RESEARCH CORP ARLINGTON VA

COMPUTER SIMULATION OF HARD ROCK TUNNELING
PROGRAM: PROGRAM TAPE.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. OCT 70-APR 72,
MAY 73 IV HIBBARD, R. R. PIETRZAK, L.

M. :

REPT. NO: GRC-CR-2-190-TAPE
CONTRACT: H0110238

UNCLASSIFIED REPORT

AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED:
7 TRACK, 556 AND 800 RPI, ODD AND EVEN PARITY, BCD; OR
9 TRACK, 800 RPI, ODD PARITY, EBCDIC. AVAILABLE TO
NON-U.S. ADDRESSES \$375.00. PRICE INCLUDES
DOCUMENTATION - AD-763 563 THRU AD-763 565 AND AD-763
567.

DESCRIPTORS: *CONSTRUCTION, *UNDERGROUND STRUCTURES,
*COMPUTERIZED SIMULATION, *MAGNETIC TAPE,
TUNNELING, GEOLOGICAL SURVEY, ROCK MECHANICS,
FRAGMENTATION, EARTH HANDLING EQUIPMENT, COSTS,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, *HARD
ROCK TUNNELING, MATERIAL CONTROL, BENEFIT COST
ANALYSIS

(U)

THIS IS THE MAGNETIC TAPE CONTAINING COMPUTER
PROGRAMS LISTED IN VOLUME 2 OF THE FINAL TECHNICAL
REPORT GENERATED UNDER CONTRACT H0110238. A
COMPUTER MODEL OF THE OVERALL HARD ROCK TUNNELING
PROCESS WHICH CONSIDERS BOTH PERFORMANCE AND COSTS OF
THE OPERATION WAS DEVELOPED. SEGMENTS OF THE
TUNNELING PROCESS MODELED INCLUDE GEOLOGY,
FRAGMENTATION METHODS, MUCK REMOVAL, GROUND SUPPORT,
AND ENVIRONMENTAL CONSIDERATIONS. A THREE-
DIMENSIONAL STRATIFIED GEOLOGY MODEL, FUNCTIONS AS A
DATA FILE TO REPRESENT GEOLOGICAL CONDITIONS IN THE
AREA SURROUNDING THE TUNNEL. THE USER HAS A CHOICE
OF SIMULATING ROCK FRAGMENTATION BY DRILL AND BLAST,
BORING MACHINE, HIGH VELOCITY WATER JET, AND
PROJECTILE IMPACT. HE MAY ALSO SIMULATE EITHER
RAIL, TRUCK, OR CONVEYOR BELT HAULAGE SYSTEMS.
STEEL SETS, SHOTCRETE, AND ROCK BOLTS ARE OFFERED
AS A CHOICE OF GROUND SUPPORT METHODS.
ENVIRONMENTAL FACTORS CONSIDERED INCLUDE WATER
REMOVAL, VENTILATION, AND COOLING. A COST
ACCOUNTING SYSTEM IS INCORPORATED TO PROVIDE COST-
BENEFIT ANALYSIS OF TUNNELING SYSTEM PERFORMANCE.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 780 765 1976 1974
S AND D DYNAMICS INC HUNTINGTON N Y

MUZZLE BRAKE ANALYSIS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 67P SOIFER, MARTIN T. ;
REPT. NO. TR-73-6
CONTRACT: DAAFO7-73-C-0541
PROJ: DA-1-W-62603-A-004
TASK: 1-W-62603-A-00401
MONITOR: WVT CR-74010

UNCLASSIFIED REPORT

DESCRIPTORS: *GUN BARRELS, *MUZZLE BRAKES, FLOW
FIELDS, OBTURATION(BALLISTICS), PRESSURE,
FORTRAN, MOMENTUM TRANSFER, COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS (U)

A RELATIVELY SIMPLE MATHEMATICAL MODEL, AND
COMPUTER PROGRAM, HAS BEEN DEVELOPED FOR THE PURPOSES
OF ESTIMATING THE INSTANTANEOUS PRESSURE
DISTRIBUTION, MOMENTUM TRANSFER, AND BRAKING FORCE,
EXPERIENCED AT THE SURFACE OF A MUZZLE BRAKE ELEMENT
EXPOSED TO THE GAS FLOW EMANATING FROM THE MUZZLE OF
A GUN TUBE. THE FLOW FIELD MODEL IS ESTABLISHED BY
ASSUMING THE EXISTENCE OF QUASI-STEADY FLOW
CONDITIONS, AND SUPERPOSING A CONSTANT LONGITUDINAL
VELOCITY COMPONENT UPON THE RADIAL GAS VELOCITY AS
DEFINED BY THE CYLINDRICAL BLAST WAVE SOLUTION OF
SAKURAI. THE FLOW FIELD MODEL IS COMBINED WITH
NEWTONIAN IMPACT THEORY TO OBTAIN THE INSTANTANEOUS
PRESSURE DISTRIBUTION. (MODIFIED AUTHOR
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 079 1/3 9/2
ADAPTRONICS INC MCLEAN VA

COMPUTER SIMULATION OF RPV FLIGHT
CHARACTERISTICS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN-29 SEP
73,

MAR 74 86P CLEVELAND, DIXON ; BARRON,
ROGER L. ; DERRICK, MILFORD R. ;
REPT. NO: 676-FTR
CONTRACT: F33615-73-C-4055
MONITOR: AMRL TR-73-119

UNCLASSIFIED REPORT

DESCRIPTORS: *REMOTELY PILOTED VEHICLES, *FLIGHT
SIMULATORS, DIGITAL SIMULATION, COMPUTER PROGRAMS,
FLIGHT CONTROL SYSTEMS, FLIGHT INSTRUMENTS,
AERONAUTICS, FLIGHT TRAINING, FORTRAN
IDENTIFIERS: POP-12 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

THE REPORT PRESENTS A SET OF EQUATIONS OF MOTION
FOR REMOTELY PILOTED VEHICLES. THE EQUATIONS ARE
WRITTEN IN A FORM SUITABLE FOR A REAL-TIME DIGITAL
COMPUTER SIMULATION. THE SIMULATION IS INTENDED TO
PROVIDE A TEST BED FOR EVALUATING ALTERNATIVE RPV
CONTROL SYSTEMS. A FORTRAN PROGRAM FOR USE ON A
DIGITAL EQUIPMENT CORPORATION POP-12
COMPUTER IS PRESENTED. AIRFRAME PARAMETER VALUES
ARE GIVEN FOR SEVERAL FLIGHT CONDITIONS OF AN AIR-TO-
GROUND RPV, AN AIR-TO-AIR RPV AND, A
RECONNAISSANCE/EW RPV. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 128 21/Y.2 21/2 9/2
ROCKWELL INTERNATIONAL CORP MCGREGOR TEX ROCKETDYNE
DIV

MULTIPLE-FLAME COMBUSTION MODEL FORTRAN
IV COMPUTER PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 90P SAMMONS, G. D. BARRINGTON,
D. K. BURNSIDE, C. H. ;
REPT. NO. R-4827
CONTRACT: F44620-72-C-0046
PROJ: AF-9711
TASK: 971101
MONITOR: AFOSR TR-74-0985

UNCLASSIFIED REPORT

DESCRIPTORS: *COMBUSTION, *SOLID ROCKET PROPELLANTS,
*COMPUTER PROGRAMS, BURNING RATE, FORTRAN,
MATHEMATICAL MODELS
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
NRCOMB COMPUTER PROGRAM, IBM 360 COMPUTERS

(U)

(U)

SEVERAL INVESTIGATORS HAVE FORMULATED COMPETING-
FLAME MODELS DESCRIBING COMPOSITE SOLID PROPELLANT
COMBUSTION. THIS REPORT COVERS MR. G. D.
SAMMONS' COMPETING-FLAME MODELING EFFORTS. HIS
PAPERS DESCRIBING THE MODEL ARE APPENDED. THIS
REPORT DESCRIBES AND LISTS THE FORTRAN IV
COMPUTER PROGRAM WHICH IS THE PRACTICAL OUTCOME OF
ANY MODELING EFFORT. INCLUDED IS THE SOLUTION OF
AN EXAMPLE PROBLEM--ESTIMATION OF THE BURNING RATE OF
A LOW-SMOKE HTPB PROPELLANT. HOW THE NECESSARY
INPUT VALUES ARE OBTAINED AND HOW THEY ARE INPUT IS
DISCUSSED IN DETAIL. FINALLY, THE COMPUTER
SOLUTION PRINTOUT IS DEPICTED. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 149 15/7
GRUMMAN AEROSPACE CORP BETHPAGE N Y RESEARCH DEPT

THE ANALYSIS OF TACTICS AND SYSTEM
CAPABILITY IN AERIAL DOGFIGHT GAME MODELS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAR 72-31 MAR 74,
MAY 74 132P FALCO, MICHAEL ; CARPENTER,
GILBERT ; KAERCHER, ARTHUR ;
REPT. NO. RE-474
CONTRACT: F44620-72-C-0032
PROJ: AF-9769
TASK: 976901
MONITOR: AFOSR TR-74-0993

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAY 73, AD-
764 352.

DESCRIPTORS: *AERIAL WARFARE, *GAME THEORY,
CONTROL THEORY, MILITARY STRATEGY, PURSUIT
COURSES, MATHEMATICAL MODELS, COMPUTER PROGRAMS,
FORTRAN (U)

IDENTIFIERS: ZERO SUM GAMES, PURSUIT EVASION
GAMES, FORTRAN 4 PROGRAMMING LANGUAGES (U)

THE MAIN PROBLEM OF INTEREST IN THE REPORT IS THE
QUANTIFICATION OF 'AIR SUPERIORITY' OF AN AIRCRAFT
WEAPONS SYSTEM WHEN EMPLOYED AGAINST ADVERSARY
SYSTEMS. THE APPROACH USES GAME MODELS OF AERIAL
DUELS AND RELIES UPON COMPUTATIONAL PROCEDURES THAT
PROVIDE A DECOMPOSITION OF THE SPACE OF GAME INITIAL
CONDITIONS INTO SETS OF UNILATERAL CAPTURE CAPABILITY
FOR EACH OF THE PLAYERS, AND FURTHER OUTLINES THE
DRAW AND SACRIFICE SETS IN ACCORDANCE WITH THE
PLAYERS' INDIVIDUAL PREFERENCES FOR GAME OUTCOMES.
THESE PROCEDURES ALSO DEVELOP THE STRATEGY OR
FEEDBACK CONTROL (IN TERMS OF THE OBSERVABLE
STATE) THAT ATTAINS THE DECOMPOSITION. THREE GAME
MODELS ARE CONSIDERED IN THE REPORT. (MODIFIED
AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 369 12/1 9/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

SOME METHODS FOR APPROXIMATING FUNCTIONS OF
SEVERAL VARIABLES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. FEB-MAR 74,
MAY 74 61P FRANKE, RICHARD I
REPT. NO. NPS-53FE74051

UNCLASSIFIED REPORT

DESCRIPTORS: *FUNCTIONS(MATHEMATICS),
*APPROXIMATION, INTERPOLATION, LEAST SQUARES
METHOD, COMPUTER PROGRAMS, FORTRAN,
TABLES(DATA)

(U)

IDENTIFIERS: MINMAX COMPUTER PROGRAM, LSTSQ
COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

SOME METHODS OF APPROXIMATING DISCRETE FUNCTIONS OF
SEVERAL VARIABLES WERE INVESTIGATED. THE PRINCIPAL
GOAL WAS A SUITABLE APPROXIMATION FOR AERODYNAMIC AND
INFRARED SIGNATURE DATA FOR USE IN REAL TIME HYBRID
COMPUTER SIMULATIONS. THE MAIN THRUST IS TOWARD
APPROXIMATION BY SUMS OF FUNCTIONS OF FEWER
VARIABLES. TWO COMPUTER PROGRAMS ARE GIVEN, AND A
NUMBER OF COMPARISONS BETWEEN THREE TYPES OF
APPROXIMATIONS ARE GIVEN. IT IS DECIDED THAT NO
METHOD FOR DETERMINING, A PRIORI, THE KIND OF
APPROXIMATION WHICH WILL YIELD SUITABLE RESULTS IS
KNOWN, EXCEPT IN SPECIAL CASES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 853 15/5 13/10
NAVAL WEAPON SYSTEMS ANALYSIS OFFICE WASHINGTON D C

CARRIER ONBOARD DELIVERY SIMULATION MODEL
(CODSIM). USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 74 85P CLARK, WILLIAM E. , JR;
REPT. NO. WSAO-R-745

UNCLASSIFIED REPORT

DESCRIPTORS: *AIRCRAFT CARRIERS, *LOGISTICS SUPPORT,
FORTRAN, DIGITAL SIMULATION, SUPPLIES, AIR
TRANSPORTATION, SCHEDULING, PAYLOAD, COMPUTER
PROGRAMS

(U)

IDENTIFIERS: *SUPPLY AFLOAT, FORTRAN 4 PROGRAMMING
LANGUAGE, IBM 360/91 COMPUTERS, MAIL,
PASSENGERS, CODSIM COMPUTER PROGRAM

(U)

CODSIM WAS DEVELOPED IN 1973-74 STUDY OF NAVY
TRANSPORT AIRCRAFT REQUIREMENTS FOR 1980-85. THE
MODEL IS DESIGNED TO SIMULATE BASE TO SHIP
OPERATIONS. THE REPORT DESCRIBES THE MODEL, AND
INCLUDES A PROGRAM LISTING AND DESCRIPTION OF
VARIABLES. IT DISCUSSES ASSUMPTIONS, CALCULATIONS,
AND OUTPUT REPORTS. IT DESCRIBES FORMAT
REQUIREMENTS AND RECOMMENDATIONS AS TO USE OF THE
MODEL, INCLUDING ANALYTICAL TECHNIQUES.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 976 16/4 20/11
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GROUND
EQUIPMENT AND MATERIALS DIRECTORATE

ANALYSIS OF AN AXISYMMETRIC, ORTHOTROPIC
SHELL OF REVOLUTION WITH TRANSVERSE SHEAR
DEFORMATIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 74 SIP ELDRIDGE, CHARLES M. HUANG,
JII-CHIN ;
REPT. NO. RL-TR-74-9
PROJ: DA-1-E-762708-A-090
TASK: 1-E-762708-09013

UNCLASSIFIED REPORT

DESCRIPTORS: ROCKET ENGINE CASES, SHEAR PROPERTIES,
SHELLS (STRUCTURAL FORMS), COMPOSITE MATERIALS,
FIBER REINFORCEMENT, DEFORMATION, MATHEMATICAL
MODELS, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: FINITE ELEMENT ANALYSIS, ORTHO1
COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE,
CDC 6600 COMPUTERS (U)

A STRAIGHT-LINE ELEMENT IS USED TO ANALYZE AN
AXISYMMETRIC, ORTHOTROPIC SHELL OF REVOLUTION BY THE
FINITE ELEMENT METHOD. SHEAR DEFORMATIONS ARE
INCLUDED. THE ELEMENT STIFFNESS RELATIONS WERE
OBTAINED FROM THE WELL-KNOWN PRINCIPLE OF MINIMUM
POTENTIAL ENERGY. A COMPUTER PROGRAM TO IMPLEMENT
THE SOLUTION AND THE INSTRUCTIONS FOR ITS USAGE ARE
ALSO REPORTED. EXAMPLE PROBLEMS ILLUSTRATING
ACCURACY AND USAGE ARE INCLUDED. (AUTHOR-PL) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 992 16/2 19/4 9/2
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GUIDANCE AND
CONTROL DIRECTORATE

USER'S GUIDE FOR A MONTE - CARLO POINT
TARGET TERMINAL HOMING SIMULATION PROGRAM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 74 305P TAYLOR, D. S. LEE, A. W.
JR.; LEWIS, C. L. ;
REPT. NO. RG-74-37
PROJ: DA-1-M-362303-A-214

UNCLASSIFIED REPORT

DESCRIPTORS: *TARGETS, *LASER GUIDANCE, *TERMINAL
HOMING, *COMPUTER PROGRAMS, MISS DISTANCE,
CIRCULAR ERROR PROBABLE, GUIDED MISSILE
TRAJECTORIES, PROPORTIONAL NAVIGATION, MONTE CARLO
METHOD, DIGITAL SIMULATION, FORTRAN, USER NEEDS (U)
IDENTIFIERS: SIX DEGREES OF FREEDOM, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS (U)

THE REPORT DOCUMENTS A NEWLY DEVELOPED ALL-DIGITAL,
SIX DEGREE OF FREEDOM POINT TARGET LASER GUIDANCE
MONTE - CARLO MISS DISTANCE SIMULATION PROGRAM.
IT IS MODULARLY CONSTRUCTED TO FACILITATE
ADAPTATION OF THE PROGRAM TO REFLECT CHANGING
HARDWARE COMPONENTS, DIFFERENT LEVELS OF ENVIRONMENT
MODELING DETAIL, ETC. THE MONTE - CARLO
APPROACH TO STATISTICAL MISS DISTANCE ANALYSIS WAS
CHOSEN BECAUSE A REALISTIC MODEL CAN BE EMPLOYED
(IN PARTICULAR, A LINEAR MODEL IS NOT REQUIRED)
BECAUSE ERROR COUPLING IS INHERENTLY INCLUDED, AND
BECAUSE CONFIDENCE INTERVALS CAN BE READILY
CALCULATED. EIGHT RANDOM ERROR SOURCES RELATING TO
LASER POINT TARGET GUIDANCE ARE MODELED IN THE
PROGRAM. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 782 178 17/5 17/8 20/6
ENVIRONMENTAL RESEARCH INST OF MICHIGAN ANN ARBOR INFRARED
AND OPTICS DIV

POLARIZED EMITTANCE. VOLUME 1: POLARIZED
BIDIRECTIONAL REFLECTANCE WITH LAMBERTIAN OR
NON-LAMBERTIAN DIFFUSE COMPONENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 10 APR-31 DEC 72,
MAY 74 126P MAXWELL, J. R. WEINER, S.
F. I.

REPT. NO. ERIM-192500-1-T(1)
CONTRACT: DAAD05-72-C-0246
PROJ: DA-1-T-061102-B-11-A
MONITOR: BRL CR-154

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-782 179.

DESCRIPTORS: *REMOTE DETECTORS, *INFRARED DETECTORS,
OPTICAL DETECTORS, SURFACE ROUGHNESS, REFLECTANCE,
POLARIZATION, MATHEMATICAL MODELS, COMPUTER
PROGRAMS, FORTRAN (U)

IDENTIFIERS: RHOPRIME COMPUTER PROGRAM, REMOTE
SENSING, FORTRAN 4 PROGRAMMING LANGUAGE (U)

VOLUME 1 OF THIS REPORT PROVIDES THE BALLISTIC
RESEARCH LABORATORIES WITH A DISCUSSION OF THE
ALGORITHMS UPON WHICH THE BIDIRECTIONAL REFLECTANCE
MODEL IS BASED, IN PARTICULAR THE NON-LAMBERTIAN
VOLUME MODEL WHICH WAS CONSTRUCTED UNDER THIS
CONTRACT. THE REPORT PROVIDES A VALIDATION OF THE
MODEL WITH RESPECT TO THE MATERIALS SUPPLIED BY
BRL. IT INCLUDES A LISTING OF APPROPRIATE MODEL
PARAMETERS WITH A DESCRIPTION OF HOW TO USE THE
MODEL, AND A LISTING OF THE COMPUTER PROGRAM WITH ITS
SUBROUTINES. THE MODEL MAKES IT POSSIBLE TO
CALCULATE BIDIRECTIONAL REFLECTANCE DATA FROM A VERY
SMALL AMOUNT OF MEASURED DATA. ACCURACY
DEMONSTRATED INDICATES THAT THE MODEL IS VERY
EFFECTIVE, ALTHOUGH IMPROVEMENT CAN STILL BE OBTAINED
AT LARGE RECEIVER ZENITH ANGLES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 762 202 20/4 9/2
FLOW RESEARCH INC KENT WASH

A COMPUTER PROGRAM FOR THREE-DIMENSIONAL
LIFTING BODIES IN SUBSONIC INVISCID FLOW.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 74 147P WOODWARD, F. A. ; DVORAK, F.
A. ; GELLER, E. W. ;
REPT. NO. FLOW RES-26
CONTRACT: DAAJ02-73-C-0065
PROJ: DA-1-F-162204-AA-41
TASK: 1-F-162204-AA-4102
MONITOR: USAAMRDL TR-74-18

UNCLASSIFIED REPORT

DESCRIPTORS: *WING BODY CONFIGURATIONS, *AERODYNAMIC
CHARACTERISTICS, *COMPUTER PROGRAMS, LIFTING BODIES,
THREE DIMENSIONAL FLOW, SUBSONIC CHARACTERISTICS,
INVISCID FLOW, VORTICES, ANGLE OF ATTACK, YAW,
MATHEMATICAL MODELS, PRESSURE, COEFFICIENTS,
NUMERICAL METHODS AND PROCEDURES, EQUATIONS OF
MOTION, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

A COMPUTER PROGRAM FOR THE ANALYSIS OF WING-BODY
COMBINATIONS IN SUBSONIC FLOW IS DESCRIBED. THE
CONFIGURATION IS REPRESENTED BY A LARGE NUMBER OF
SURFACE PANELS. THE CIRCULATION ABOUT LIFTING
SURFACES IS PROVIDED BY A SYSTEM OF VORTEX LATTICES.
THE STRENGTHS OF THE SOURCES AND VORTICES WHICH
SATISFY THE BOUNDARY CONDITION OF TANGENTIAL FLOW FOR
A GIVEN MACH NUMBER, ANGLE OF ATTACK, AND/OR ANGLE
OF YAW ARE DETERMINED BY SOLVING A SYSTEM OF LINEAR
EQUATIONS BY AN ITERATIVE PROCEDURE. THE PROGRAM
COMPUTES THE PRESSURE COEFFICIENTS AT THE PANEL
CENTROIDS AND INTEGRATES THESE PRESSURES NUMERICALLY
TO OBTAIN THE LIFT, DRAG, AND PITCHING MOMENTS.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 782 399 9/5 13/1
NAVAL RESEARCH LAB WASHINGTON D C

ANALYSIS OF DISCRETE PULSE FORMING NETWORKS
DRIVING NON-LINEAR FLASH LAMP LOADS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 76P BARR, ORVILLE C. ;
REPT. NO. NRL-MR-2808
PROJ: NRL-65H0229

UNCLASSIFIED REPORT

DESCRIPTORS: *PULSE GENERATORS, *FLASH LAMPS,
*XENON LAMPS, MATHEMATICAL MODELS, ELECTRICAL
NETWORKS, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: *NETWORK ANALYSIS THEORY, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6400 COMPUTERS, *PULSE
FORMING NETWORKS

(U)

AN INTERACTIVE DESIGN TOOL FOR ANALYZING DISCRETE
LUMPED PARAMETER PULSE FORMING NETWORKS DRIVING TIME
INVARIANT NONLINEAR FLASHLAMP LOADS IS DESCRIBED.
THE PROGRAM IS WRITTEN IN FORTRAN IV FOR THE
CONTROL DATA KRONOS TIMESHARING SYSTEM. THE
PROGRAM HANDLES LINEAR (RESISTIVE) LOADS AS WELL
AS XENON FLASHLAMPS. THE FORMULATION IS STRUCTURED
TO ALLOW EASY MODIFICATION. UP TO 10 MESH PFN'S
CAN BE HANDLED. (AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 782 566 12/1 9/2
NAVAL SHIP ENGINEERING CENTER PHILADELPHIA PA PHILADELPHIA
DIV

COLLECTION OF ALGORITHMS FOR THE INTEGRATION OF
ORDINARY DIFFERENTIAL EQUATIONS ON A DIGITAL
COMPUTER.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 101P LOEB, A. M. ; COHEN, J. ;
REPT. NO. NAVSECPHILAD-C-69-4
PROJ: SF432-705
TASK: SF432-705-10, 12504

UNCLASSIFIED REPORT

DESCRIPTORS: *DIFFERENTIAL EQUATIONS, *NUMERICAL
INTEGRATION, *COMPUTER PROGRAMS, DIGITAL COMPUTERS,
SUBROUTINES, FORTRAN
IDENTIFIERS: ORDINARY DIFFERENTIAL EQUATIONS,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

IN THE CONTINUING EFFORT ON THIS PROJECT TO DEVELOP
NEW AND IMPROVED METHODS FOR THE NUMERICAL SOLUTION
OF ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS,
SEVERAL USEFUL AND IMPORTANT FORTRAN SUBROUTINES
HAVE BEEN COLLECTED TO SOLVE PROBLEMS AT
NAVSECPHILADIV. IT IS THE PURPOSE OF THIS REPORT
TO DISCUSS THESE SUBROUTINES WITH PARTICULAR EMPHASIS
ON THEIR APPLICATION TO PRACTICAL PROBLEMS. WITH
THESE SUBROUTINES THE USER MAY SOLVE A WIDE SPECTRUM
OF ENGINEERING AND SCIENTIFIC PROBLEMS INVOLVING
ORDINARY DIFFERENTIAL EQUATIONS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 782 705 12/1 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

TABLES OF THE STANDARDIZED PERCENTAGE POINTS
OF THE PEARSON SYSTEM OF CURVES IN TERMS OF
BETA 1 AND BETA 2.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 193P HOUVER, HUBERT ; BARGMANN, ROLF
E. ;
REPT. NO. TR-107, THEMIS-UGA-32
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

DESCRIPTORS: *ANALYSIS OF VARIANCE, *DISTRIBUTION
FUNCTIONS, PROBABILITY DENSITY FUNCTIONS, CURVE
FITTING, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: THEMIS PROJECT, PEARSON DENSITY
FUNCTIONS, GAMMA FUNCTION, BETA FUNCTION,
FORTRAN 4 PROGRAMMING LANGUAGE, CDC 6400
COMPUTERS

(U)

THE PURPOSE OF THE TECHNICAL REPORT IS TO PRESENT
TABLES OF THE STANDARDIZED PERCENTAGE POINTS OF THE
PEARSON SYSTEM OF CURVES IN TERMS OF (BETA SUB
1) AND (BETA SUB 2) AND TO GIVE A COMPUTER
PACKAGE FOR THE ENTIRE (BETA SUB 1), (BETA SUB
2) PLANE OF THE PEARSONIAN SYSTEM WHICH WILL
EVALUATE THE PERCENTAGE POINT, THE PROBABILITY LEVEL
AND THE PROBABILITY DENSITY FUNCTION OF A GIVEN
STANDARDIZED VARIATE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 782 706 12/1 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

INTERNAL MULTI-DIMENSIONAL SCALING OF
CATEGORICAL VARIABLES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 74 258P CHANG, JEFFREY CHIT-FU ;
BARGMANN, ROLF E. ;
REPT. NO. TR-108, THEMIS-UGA-34
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

DESCRIPTORS: •MULTIVARIATE ANALYSIS,
MATRICES (MATHEMATICS), CORRELATION TECHNIQUES,
SET THEORY, CONTROL SEQUENCES, COMPUTER PROGRAMS,
FORTRAN
IDENTIFIERS: MAXIMUM LIKELIHOOD ESTIMATION,
CONTINGENCY TABLES, THEMIS PROJECT, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

THE PURPOSE OF THE STUDY IN THE DISSERTATION IS TO
TRANSLATE RAW CATEGORIZED DATA INTO NUMERICAL VALUES
ON WHICH STANDARD STATISTICAL ANALYSES CAN BE
PERFORMED. WHEN RAW OBSERVATIONS ARE RECORDED ON A
NOMINAL SCALE, THEY ARE TO BE TRANSFORMED SO THAT THE
RESULTING NUMBERS CAN BE REGARDED AS LYING ON AN
INTERVAL SCALE. A SCALLING TECHNIQUE IS DEVELOPED
ON THE BASIS OF A GENERALIZATION OF LANCASTER'S
APPROACH (CANONICAL CORRELATION FOR TWO SETS).
THE REPORT ALSO PRESENTS COMPUTER PROGRAMS STARTING
FROM DATA IN CONTINGENCY TABLES WHICH ARE CONVERTED
INTO A CORRELATION MATRIX. INITIAL VALUES ARE USED
IN ORDER TO START THE MINIMUM-DETERMINANT PROCESS.
VARIOUS INITIAL WEIGHTS AND THE FINAL MINIMUM-
DETERMINANT SOLUTION ARE COMPARED. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 762 873 13/2
PENNSYLVANIA STATE UNIV UNIVERSITY PARK

A METHOD FOR INTEGRATING SURFACE AND GROUND
WATER USE IN HUMID REGIONS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 71-DEC 73,
JAN 74 233P AKON, GERT ; RACHFORD, THOMAS ;
BORRELLI, JOHN ; STOTTMANN, WALTER ;
CONTRACT: DACW31-61-C-0057
MONITOR: IWR CR-74-3

UNCLASSIFIED REPORT

DESCRIPTORS: *WATER SUPPLIES, *GROUND WATER,
*SURFACE WATERS, *RESERVOIRS, STORAGE, COSTS,
ECONOMICS, RIVERS, PUMPING, WATER TREATMENT,
MAINTENANCE, CORRELATION TECHNIQUES, WATER
RESOURCES, NEW YORK, COMPUTERIZED SIMULATION,
COMPUTER PROGRAMMING, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, WATER
UTILIZATION, WATER YIELD, WATER COSTS,
ELMIRA (NEW YORK), *AQUIFERS (U)

THE REPORT ATTEMPTS TO EXAMINE AND QUANTIFY THE
ROLE OF GROUND WATER IN FUTURE ALLOCATIONS OF SURFACE
WATER STORAGE FOR WATER SUPPLY. IT IDENTIFIES THE
CIRCUMSTANCES UNDER WHICH INTEGRATED USE OF GROUND
AND SURFACE WATER MAY BE DESIRABLE IN HUMID REGIONS
SUCH AS THE APPALACHIAN. THE REPORT DEVELOPS A
METHODOLOGY FOR ANALYSIS AND INCLUDES A CASE STUDY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 783 478 20/6 20/5
BALLISTIC RESEARCH LABS ABENDEEN PROVING GROUND MD

AN ANALYSIS OF MATHEMATICAL TRANSFORMATIONS
AND A COMPARISON OF NUMERICAL TECHNIQUES FOR
COMPUTATION OF HIGH-ENERGY CW LASER
PROPAGATION IN AN INHOMOGENEOUS MEDIUM. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 49P BREAU, HAROLD J. ;
REPT. NO. BRL-1743
PROJ: RDT/E-1-T-662609-A-308

UNCLASSIFIED REPORT

DESCRIPTORS: •LASER BEAMS, WAVE PROPAGATION,
HYDRODYNAMICS, FOURIER TRANSFORMATION,
TRANSFORMATIONS(MATHEMATICS), COHERENT
RADIATION, COMPUTATIONS, COMPUTER PROGRAMS,
FORTRAN (U)
IDENTIFIERS: FAST FOURIER TRANSFORM, FORTRAN 4
PROGRAMMING LANGUAGE, ATMOSPHERIC ATTENUATION (U)

PRESENT METHODS FOR MODELING THE PROPAGATION OF
FOCUSED AND COLLIMATED LASER BEAMS ARE EXAMINED.
METHODS USED FOR TRANSFORMING THE PARAXIAL EQUATION
INTO A FORM MORE SUITABLE FOR COMPUTATION ARE
GENERALIZED. THIS GENERALIZATION IS SHOWN TO LEAD
TO MORE BENEFICIAL COMPUTATIONAL CHARACTERISTICS THAN
TRANSFORMATIONS PREVIOUSLY EMPLOYED. VARIOUS
STRATEGIES ARISING FROM THESE TRANSFORMATIONS ARE
ANALYZED AND COMPARED FOR NUMERICAL EFFICIENCY.
THE TRANSFORMED EQUATIONS ARE SHOWN TO BE A
CONVENIENT POINT OF DEPARTURE FOR SOLUTION BY A CLASS
OF NUMERICAL METHODS. THE FORMULATION IS SHOWN TO
LEAD TO A FAST FOURIER TRANSFORM (FFT)
SOLUTION THAT DOES NOT REQUIRE A NYQUIST ACCURACY
CRITERION, ALLOWING THE NUMERICAL PROCEDURE TO MARCH
THE SOLUTION FORWARD IN A MORE ECONOMICAL FASHION.
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 783 487 15/5 9/5
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

USE OF COMPUTERIZED SUPPORT MODELING IN
LOGISTIC SUPPORT ANALYSIS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 23P COLON, WILLIAM M. ;
CALFAPETRA, VINCENT G. ;
REPT. NO. ECOM-4228

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE LOGISTICS
RESEARCH CONFERENCE HELD AT GEORGE WASHINGTON
UNIV., WASHINGTON, D.C., 8-10 MAY 74.

DESCRIPTORS: *LOGISTICS SUPPORT, *ELECTRONIC
EQUIPMENT, *COMPUTERIZED SIMULATION, COST
EFFECTIVENESS, MAINTAINABILITY, INVENTORY ANALYSIS,
LIFE CYCLES, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
DESIGN TO COST (U)

DURING RECENT YEARS THERE HAS BEEN A GROWING
CONCERN WITHIN THE DEPARTMENT OF DEFENSE
(DOD) FOR THE CONSEQUENCES OF IGNORING PREDICTED
LOGISTICS COSTS FOR ANY GIVEN SYSTEM WHILE IT IS
STILL IN DESIGN. IN ORDER TO DEAL WITH THE
PROBLEMS OF OWNERSHIP AS WELL AS ACQUISITION OF A
SYSTEM, ONE MUST BE ABLE TO BRIDGE THE GAP BETWEEN
THE INHERENT CHARACTERISTICS OF THE DESIGN AND
ENVIRONMENT IN WHICH THE SYSTEM WILL BE OPERATED AND
MAINTAINED. A VALUABLE TECHNIQUE FOR IDENTIFYING
AND EVALUATING THE MOST COST EFFECTIVE OPTIONS FOR
MANAGEMENT DECISION IN THIS AREA IS THE PERFORMANCE
OF LOGISTIC SUPPORT ANALYSIS (LSA) UTILIZING
COMPUTERIZED SUPPORT MODELING. A DEMONSTRATION OF
HOW COMPUTERIZED SUPPORT MODELING (GEMM) CAN BE
APPLIED IN THIS MANNER, IS PRESENTED BY CONSIDERING
THE DESIGN AND DEVELOPMENT OF AN ELECTRONICS SYSTEM
FOR ARMY USE. TWO EXAMPLES ARE PROVIDED IN ORDER
TO ILLUSTRATE TYPICAL LSA'S DURING BOTH THE
ADVANCED DEVELOPMENT AND ENGINEERING
DEVELOPMENT PHASES. (MODIFIED AUTHOR
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 783 893 12/1 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

STRUCTURE AND DISTANCE OF LOGICAL PATTERNS.
APPENDIX. VOLUME 1.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 233P BARGMANN, ROLF ;
REPT. NO. THEMIS-UGA-33-VOL-1
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-728 427.

DESCRIPTORS: *STATISTICAL ANALYSIS, *PATTERN
RECOGNITION, ESTIMATES, MATRICES(MATHEMATICS),
COMPUTER PROGRAMS, SUBROUTINES, FORTRAN,
DISTRIBUTION FUNCTIONS, TABLES(DATA)
IDENTIFIERS: THEMIS PROJECT, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

(U)

THE AUTHOR ILLUSTRATES SOME OF THE TECHNIQUES OF
THE PREVIOUS CHAPTERS BY CONSIDERING TWO NUMERICAL
EXAMPLES. THESE EXAMPLES WERE CONSTRUCTED ON THE
BASIS OF ARTIFICIAL SETS OF PARAMETERS. IN
EXAMPLE I, A SET OF 13 DIAGNOSTIC EVENTS EACH
BEING IN 2 STATES WAS OBSERVED ASSUMING A MAJOR EVENT
IN 3 STATES, WHEREAS IN EXAMPLE II, A SET OF 15
DIAGNOSTIC EVENTS, EACH BEING IN 3 STATES, WAS
OBSERVED ASSUMING A MAJOR EVENT IN 2 STATES. IN
EACH EXAMPLE, TIME-DEPENDENCE OF ROWS HAS BEEN
ASSUMED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 783 894 12/1 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

STRUCTURE AND DISTANCE OF LOGICAL PATTERNS.
APPENDIX. VOLUME II.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 288P BARGMANN, ROLF ;
REPT. NO. THEMIS-UGA-33-VOL-2
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-783 893.

DESCRIPTORS: *STATISTICAL ANALYSIS, *PATTERN
RECOGNITION, DISTRIBUTION FUNCTIONS, COMPUTER
PROGRAMS, FORTRAN, SUBROUTINES
IDENTIFIERS: THEMIS PROJECT, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

(U)

THE REPORT CONTAINS APPENDICES F, G AND H OF
THE THEMIS PROJECT STUDY 'STRUCTURE AND
DISTANCE OF LOGICAL PATTERNS'.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 783 895 12/1 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

STRUCTURE AND DISTANCE OF LOGICAL PATTERNS.
APPENDIX. VOLUME III.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 331P BARGMANN, ROLF ;
REPT. NO. THEMIS-UGA-33-VOL-3
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-783 894.

DESCRIPTORS: *STATISTICAL ANALYSIS, *PATTERN
RECOGNITION, DISTRIBUTION FUNCTIONS, MULTIVARIATE
ANALYSIS, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: THEMIS PROJECT, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

(U)

THE REPORT CONTAINS APPENDICES I, J, K AND
L OF THE THEMIS PROJECT STUDY 'STRUCTURE AND
DISTANCE OF LOGICAL PATTERNS'.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 763 896 9/2
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER
SCIENCE

METHODS OF CONVERSION OF COMPUTER DEPENDENT
INTERACTIVE PROGRAMS. EXAMPLE: ANALYSIS OF
COVARIANCE.

(U)

JUL 74 180P HAYWARD, JUDITH LANTZY ;
BARGMANN, ROLF E. ;
REPT. NO. TR-105, THEM, S-UGA-30
CONTRACT: N00014-69-A-0423
PROJ: NK-042-261

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *INTERACTIVE GRAPHICS, *COMPUTER
PROGRAMS, SUBROUTINES, CONVERSION, FORTRAN,
STATISTICAL ANALYSIS

(U)

IDENTIFIERS: CONVERSATIONAL PROGRAMMING, COMPUTER
PROGRAM TRANSFERABILITY, IBM 360 COMPUTERS, CDC
6400 COMPUTERS

(U)

THE REPORT CONTAINS INSTRUCTIONS AND EXAMPLES FOR
CONVERTING CONVERSATIONAL PROGRAMS FROM THE GMS
PACKAGE ON THE IBM 360/2250 PROGRAMS WHICH OPERATES
REMOFTLY THE CDC 6400 THROUGH INTERCOM UNDER THE
SCOPE MONITOR. STEPS IN THE PROCEDURE ARE
OUTLINED, AND IMPORTANT DIFFERENCES ARE EXPLAINED
FULLY IN SEPARATE CHAPTERS USING THE ANALYSIS OF
COVARIANCE UNIT AS AN EXAMPLE. IMPORTANT PHASES OF
THE CONVERSION WHICH ARE EXPLAINED IN DETAIL ARE THE
OVERLAY STRUCTURE, THE USE OF THE GRAPHICS
SUBROUTINES (INCLUDING SIMULATION OF THE PROGRAM
FUNCTION KEY'S), DIRECT ACCESS INPUT/OUTPUT,
ANALYSIS OUTPUT, AND VARIOUS OTHER SYSTEM
DIFFERENCES. IN ADDITION, A USER EXAMPLE IS GIVEN
TO SHOW THE EFFECT OF THE CONVERSION ON THE
CONVERSATIONAL PROGRAM. LISTINGS OF THE FORTRAN
PROGRAMS ARE CONTAINED IN THE APPENDIX.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 784 029 13/8 12/2
ARMY MATERIEL COMMAND TEXARKANA TEX INTERN TRAINING
CENTER

OPTIMIZING MULTISTAGE PLANTS FOR LOCATION AND
SIZE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 106P GREEN, RICHARD C. ;
REPT. NO. USAMC-ITC-2-73-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *INDUSTRIAL PLANTS, *SITE SELECTION,
*DYNAMIC PROGRAMMING, PRODUCTION, TRANSPORTATION,
COSTS, MATHEMATICAL MODELS, COMPUTER PROGRAMS,
OPTIMIZATION, FORTRAN, THESES
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE PAPER EXAMINES THE PROBLEM OF DETERMINATION OF
PLANT SIZE - SPECIFICALLY PLANTS WITH MULTISTAGES AND
LOCATIONS. THE POSSIBILITY OF LOCATING ONE OR MORE
STAGES AT A SINGLE LOCATION IS ALSO EVALUATED.
DEMAND CENTERS AND TRANSPORTATION COST TO FINAL
DESTINATIONS AND BETWEEN STAGES ARE ALSO PART OF THE
PROBLEM. THIS PROBLEM IS SOLVED USING DYNAMIC
PROGRAMMING AND A COMPUTER PROGRAM WAS WRITTEN TO
WORK THE PROBLEM. DYNAMIC PROGRAMMING HANDLES THE
PROBLEM OF EVALUATION OF ALL FEASIBLE ASSIGNMENTS OF
STAGES AND PLANTS TO ALL LOCATIONS IN AN ORDERLY
FASHION. AN EXAMPLE PROBLEM IS WORKED THROUGH, AND
THE OUTPUT FROM THE COMPUTER FOR SOLVING THIS PROBLEM
IS ALSO INCLUDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 784 040 14/4 13/8 12/1
ARMY MATERIEL COMMAND TEXARKANA TEX INTERN TRAINING
CENTER

A PROCEDURE FOR THE TRUNCATION OF THE
PROBABILITY RATION SEQUENTIAL TEST PLANS OF
MIL-STD-781B.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 82P MARTIN, FRANCIS A. ;
REPT. NO. USAMC-ITC-2-73-14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *QUALITY ASSURANCE, *SAMPLING, *RISK,
RELIABILITY, SEQUENTIAL ANALYSIS, ACCEPTANCE
TESTS, MILITARY REQUIREMENTS, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
PROBABILITY RATIO TESTS

(U)

THIS RESEARCH IS DESIGNED TO DEVELOP A PROCEDURE
FOR THE TRUNCATION OF THE PROBABILITY RATIO
SEQUENTIAL TEST PLANS IN MIL-STD-781B WHICH
WILL IMPROVE UPON THE PRESENT TECHNIQUE BY OBTAINING
LESS VARIANCE IN THE TRUNCATED RISKS OF THE TEST
PLANS. IN ACCOMPLISHING THIS GOAL, AN ANALYSIS OF
VARIATIONS IN THE INTERCEPTS AND SLOPES OF THE
ACCEPT/REJECT LINES WAS PERFORMED. IN ORDER TO
OBSERVE THE CHANGE IN THE PRODUCER'S RISK (ALPHA)
AND THE CONSUMER'S RISK (BETA) A COMPUTER PROGRAM
WAS DEVELOPED WHICH EVALUATED THESE RISKS WHILE
VARYING THE SLOPES AND INTERCEPTS OF THE ACCEPT/
REJECT LINES. THE FINAL PROCEDURE DEVELOPED
EMPLOYS THE USE OF A PROGRAM OF THIS TYPE.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 784 353 20/11
LOUGHBOROUGH UNIV OF TECHNOLOGY (ENGLAND) DEPT OF
TRANSPORT TECHNOLOGY

THE ELASTO-PLASTIC AND LARGE-DISPLACEMENT
RESPONSE OF PLATES TO BLAST LOADING.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
OCT 73 210P BARNARD, ALAN J. ; SHARMAN,
PETER W. ;
REPT. NO. TT-7313
CONTRACT: DAJA37-73-C-0599

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *PLATES, *BLAST LOADS, ELASTIC
PROPERTIES, PLASTIC PROPERTIES, STRUCTURAL RESPONSE,
DEFLECTION, COMPUTER PROGRAMMING, FORTRAN, GREAT
BRITAIN

(U)

IDENTIFIERS: *FINITE ELEMENT ANALYSIS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE PURPOSE OF THIS WORK IS TO DEVELOP ANALYSES FOR
THE ELASTOPLASTIC AND LARGE-DISPLACEMENT RESPONSE OF
THIN PLATES TO BLAST OR EXPLOSIVE LOADING.
APPLICATIONS LIE IN THE FIELDS OF MILITARY
STRUCTURES AND EXPLOSIVE FORMING. ANALYSES WHICH
CONSIDER THE ELASTO-PLASTIC AND LARGE-DISPLACEMENT
RESPONSES BOTH SEPARATELY AND IN COMBINATION ARE
PRESENTED. DURING THE DEVELOPMENT OF THE COMPUTER
PROGRAMS IT PROVED DESIRABLE TO INVESTIGATE IN SOME
DETAIL, THE QUASI-STATIC ELASTO-PLASTIC RESPONSE AND
THE PLATE-BENDING EIGENVALUE ANALYSIS OF THIN PLATES,
AND SEPARATE SECTIONS ARE INCLUDED ON THESE TOPICS.
THE WORK IS BASED ON THE FINITE ELEMENT METHOD AND
EMPLOYS HYBRID (PIAN) ELEMENTS. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 784 771 21/5 9/2
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB
OHIO

SIMULATION OF TRIPLE-SPOOL TURBOFAN
ENGINE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 74 156P NORVAISIS, EDWARD K. ;
REPT. NO. AFAPL-TR-74-13
PROJ: AF-668A-0215

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-825 197 AND AD-825
198.

DESCRIPTORS: *TURBOFAN ENGINES, DIGITAL SIMULATION,
PERFORMANCE(ENGINEERING), COMPUTER PROGRAMS,
FORTRAN, GAS TURBINE ROTORS

(U)

IDENTIFIERS: TRISPL COMPUTER PROGRAM, DESIGN,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT DESCRIBES A DIGITAL COMPUTER PROGRAM
ENTITLED TRISPL. TRISPL IS A COMPUTER PROGRAM
THAT SIMULATES STEADY-STATE DESIGN AND OFF-DESIGN
PERFORMANCE OF TRIPLE-SPOOL TURBOFAN ENGINES. THE
PROGRAM HAS BEEN FORMULATED FOR AN ENGINE TYPE WITH
TWO CORE SPOOLS AND ONE FAN SPOOL BUT CAN EASILY BE
MODIFIED FOR OTHER ENGINE TYPES (TWO FAN SPOOLS AND
ONE CORE SPOOL, FOR EXAMPLE). THE PROGRAM,
WRITTEN IN FORTRAN IV LANGUAGE, USES PERFORMANCE
MAPS (IN BLOCK DATA FORMAT) OF THE MAJOR
ENGINE COMPONENTS. INFORMATION ON SETTING UP THE
BLOCK DATA AND INPUT DATA IS GIVEN IN THE REPORT.
ALSO INCLUDED IS A COMPLETE PROGRAM LISTING WITH A
DESCRIPTION OF EACH SUBROUTINE AND SAMPLE RESULTS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 784 835 17/2
CENTER FOR COMMUNICATIONS RESEARCH INC ROCHESTER N Y

A STUDY OF THE CAPABILITY OF GRAMMATICAL
ANALYSIS TO IMPROVE ACCURACY IN CONTINUOUS
SPEECH RECOGNITION FOR COMMAND AND
CONTROL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 71-30 APR 74,
JUN 74 165P NEWCOMB, WILLIAM B. LARKIN,
WILBUR D. HOEDE, ROBERT A. ;
CONTRACT: F44620-71-C-0090
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-74-1361

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 28 APR 72,
AD-770 031.

DESCRIPTORS: *SPEECH RECOGNITION, *COMMAND AND
CONTROL SYSTEMS, GRAMMARS, DATA PROCESSING,
SEMANTICS, SYNTAX, PHONETICS, ACCURACY,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE PROGRAM IS DIRECTED TOWARD THE DEVELOPMENT OF A
THEORY OF SPEECH UNDERSTANDING SYSTEMS WHICH
EXPLICATES THE ROLE TO BE PLAYED BY LINGUISTIC
CONSTRAINTS (SYNTAX AND SEMANTICS) IN CORRECTING
THE ERRORS RESULTING FROM WORD RECOGNITION AT THE
ACOUSTIC-PHONETIC-LEXICAL LEVEL ALONE. THE GENERAL
MODEL OF A SPEECH UNDERSTANDING SYSTEM WHICH PROVIDES
THE FRAMEWORK FOR THIS STUDY IS THAT WHICH VIEWS
SPEECH UNDERSTANDING AS BASICALLY AN ACOUSTIC-
PHONETIC WORD RECOGNITION PROCESS, WHOSE DECISIONS
ARE QUESTIONED, AND SOMETIMES OVERRULED, BY CRITERIA
AT THE SYNTACTIC AND SEMANTIC LEVELS. THE
PRINCIPAL COMPONENTS OF THIS MODEL ARE (1) AN
ACOUSTIC TO PHONETIC TRANSFORMATION, (2) A
LEXICAL PROCESS (THE LEXICAL PROCESS ALONG WITH THE
ACOUSTIC TO PHONETIC TRANSFORMATION CONSTITUTE THE
BASIC WORD RECOGNITION SYSTEM WHOSE OUTPUT IS JUDGED
BY HIGHER LEVEL LINGUISTIC CONSTRAINTS), (3) A
MODEL OF STANDARD ENGLISH SYNTAX, (4) A MODEL
OF STANDARD ENGLISH SEMANTICS, AND (5) AN
INTEGRATING PROCESS WHICH DETERMINES THE STRATEGIES
TO BE USED IN BACKTRACKING OVER PREVIOUS DECISIONS.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 001 20/11 13/10
VIRGINIA UNIV CHARLOTTESVILLE APPLIED MECHANICS GROUP

A METHOD OF ANALYSIS OF LINE STRUCTURES BY
TRANSFER MATRICES DERIVED FROM FINITE
ELEMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 74 29P PILKEY, WALTER D. ; HAVILAND,
JOHN KENNETH ;
REPT. NO. TR-74-1
CONTRACT: N00014-69-A-0060-0009

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *STRUCTURAL MECHANICS,
*MATRICES (MATHEMATICS), COMPUTER PROGRAMMING,
DEGREES OF FREEDOM, COMPUTATIONS, FORTRAN, SHIP
STRUCTURAL COMPONENTS (U)
IDENTIFIERS: ELAS COMPUTER PROGRAM, *FINITE
ELEMENT ANALYSIS, STRUCTURAL ANALYSIS, *STIFFNESS
METHODS, CDC 6400 COMPUTERS, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

IT IS SHOWN THAT TRANSFER MATRICES CAN BE DERIVED
FROM FINITE ELEMENTS TO PROVIDE AN EFFICIENT APPROACH
FOR STRUCTURAL ANALYSIS OF COMPLICATED STRUCTURES
WITH A PRINCIPAL DIRECTION. THIS NEW SUBSTRUCTURING
TECHNIQUE IS PARTICULARLY APPROPRIATE FOR SHIP
STRUCTURES. THE METHOD IS DEMONSTRATING USING
TRANSFER MATRICES FORMED WITH THE AID OF THE FINITE
ELEMENT PROGRAM ELAS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 101 1/1 1/3
GENERAL DYNAMICS/CONVAIR SAN DIEGO CALIF

INTERACTIVE COMPUTER-AIDED DESIGN AIRCRAFT
FLYING QUALITIES PROGRAM. VOLUME 1.
USERS MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JAN-AUG 74,
AUG 74 265P PLACE, G. ; ALTMANN, H. H. ;
BARBEE, L. G. ; CAMPBELL, G. F. , JR. ;
NEUHARTH, E. R. ;
CONTRACT: F33615-74-C-4068, F33615-73-C-4081
PROJ: AF-C093
MONITOR: ASD/XR 74-17-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-785
102.

DESCRIPTORS: •JET AIRCRAFT, •AERODYNAMIC STABILITY,
AERODYNAMIC CHARACTERISTICS, AERODYNAMIC FORCES,
AERODYNAMIC CONTROL SURFACES, ANGLE OF ATTACK,
INPUT OUTPUT PROCESSING, COMPUTER PROGRAMMING,
FORTRAN, USER NEEDS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS, COMPUTER AIDED DESIGN

(U)

THIS REPORT DESCRIBES A DIGITAL COMPUTER PROGRAM
WHICH CALCULATES THE LONGITUDINAL AND LATERAL-
DIRECTIONAL STABILITY AND CONTROL DERIVATIVES AND
AIRCRAFT FLYING QUALITIES FOR A MACH NUMBER RANGE
FOR 0 -3.0. THE REPORT CONSISTS OF FOUR VOLUMES.
VOLUME 1, USERS MANUAL, CONTAINS A DETAILED
DESCRIPTION OF THE INPUT/OUTPUT OPTIONS, PROGRAM
LIMITATIONS, INPUT/OUTPUT DATA, AND A SET OF SAMPLE
PROBLEMS. VOLUME IV, PROGRAM ASSESSMENT/
CORRELATION REPORT, PRESENTS THE RESULTS OF THE
CORRELATION STUDIES AND CONCLUSIONS PERTAINING TO THE
VALIDITY OF THE METHODOLOGY. THE COMPUTER PROGRAM
IS WRITTEN IN FORTRAN IV EXTENDED LANGUAGE FOR
THE CDC 6600 OPERATING SYSTEM. HOWEVER, IT IS
DESIGNED TO BE ADAPTED TO OTHER OPERATING SYSTEMS
BECAUSE USE OF UNIQUE FEATURES PECULIAR TO A GIVEN
PROCESSOR HAS BEEN AVOIDED WHENEVER PRACTICAL.
USER ORIENTED FEATURES ARE INCLUDED IN THE PROGRAM
TO PROVIDE MINIMUM INPUT DATA REQUIREMENTS, FLEXIBLE
INPUT/OUTPUT CONTROL OPTIONS AND SUBSTITUTION OF
EXPERIMENTAL DATA FOR AERODYNAMIC CHARACTERISTICS.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 102 1/1 1/3
GENERAL DYNAMICS/CONVAIR SAN DIEGO CALIF

INTERACTIVE COMPUTER-AIDED DESIGN AIRCRAFT
FLYING QUALITIES PROGRAM. VOLUME II.
METHODS FORMULATION MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JAN-AUG 74.
AUG 74 132P PLACE, G. ; ALTMANN, H. M. ;
BARBER, L. G. ; CAMPBELL, G. F. , JR. ;
NEUHARTH, E. R. ;
CONTRACT: F33615-74-C-4068, F33615-73-C-4081
PROJ: AF-C093
MONITOR: ASD/XR 74-17-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-785 101 AND
VOLUME 3, AD-785 103.

DESCRIPTORS: *JET AIRCRAFT, *AERODYNAMIC STABILITY,
AERODYNAMIC CHARACTERISTICS, AERODYNAMIC FORCES,
AERODYNAMIC CONTROL SURFACES, ANGLE OF ATTACK,
INPUT OUTPUT PROCESSING, COMPUTER PROGRAMMING,
FORTRAN, USER NEEDS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS, COMPUTER AIDED DESIGN

(U)

THIS REPORT DESCRIBES A DIGITAL COMPUTER PROGRAM
WHICH CALCULATES THE LONGITUDINAL AND LATERAL-
DIRECTIONAL STABILITY AND CONTROL DERIVATIVES AND
AIRCRAFT FLYING QUALITIES FOR A MACH NUMBER RANGE
FOR 0 - 3.0. THE REPORT CONSISTS OF FOUR VOLUMES.
VOLUME II, METHODS FORMULATION MANUAL,
OUTLINES THE METHODOLOGY AND SOURCE, RANGE OF
APPLICABILITY, AND MODIFICATIONS. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 103 1/1 1/3
GENERAL DYNAMICS/CONVAIR SAN DIEGO CALIF

INTERACTIVE COMPUTER-AIDED DESIGN AIRCRAFT
FLYING QUALITIES PROGRAM. VOLUME III.
COMPUTER PROGRAMMING MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JAN-AUG 74,
AUG 74 457P PLACE, G. ; ALTHANN, H. M. ;
BARBEE, L. G. ; CAMPBELL, G. F. ; JR. ;
NEUHARTH, E. R. ;
CONTRACT: F33615-74-C-4068, F33615-73-C-4081
PROJ: AF-C093
MONITOR: ASD/XR 74-17-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-785 102 AND
VOLUME 4, AD-785 104.

DESCRIPTORS: *JET AIRCRAFT, *AERODYNAMIC STABILITY,
AERODYNAMIC CHARACTERISTICS, AERODYNAMIC FORCES,
AERODYNAMIC CONTROL SURFACES, ANGLE OF ATTACK,
INPUT OUTPUT PROCESSING, COMPUTER PROGRAMS,
FORTRAN, USER NEEDS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS, COMPUTER AIDED DESIGN

(U)

THIS REPORT DESCRIBES A DIGITAL COMPUTER PROGRAM
WHICH CALCULATES THE LONGITUDINAL AND LATERAL-
DIRECTIONAL STABILITY AND CONTROL DERIVATIVES AND
AIRCRAFT FLYING QUALITIES FOR A MACH NUMBER RANGE
FOR 0 - 3.0. VOLUME III, COMPUTER PROGRAMMING
MANUAL, OUTLINES THE PROGRAM ORGANIZATION, INPUT/
OUTPUT OF EACH MODULE/SUBROUTINE, MODULE OR
SUBROUTINE FUNCTION, PROGRAM LISTINGS AND FLOW
CHARTS. THE COMPUTER PROGRAM IS WRITTEN IN
FORTRAN IV EXTENDED LANGUAGE FOR THE CDC 6600
OPERATING SYSTEM. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 104 1/1 1/3
GENERAL DYNAMICS/CONVAIR SAN DIEGO CALIF

INTERACTIVE COMPUTER-AIDED DESIGN AIRCRAFT
FLYING QUALITIES PROGRAM. VOLUME IV.
PROGRAM ASSESSMENT/CORRELATION REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT., 1 JAN-AUG 74,
AUG 74 203P PLACE, G. : ALTMANN, H. M. ;
BARBER, L. G. ; CAMPBELL, G. F. , JR. ;
NEUMARTH, E. R. ;
CONTRACT: F33615-74-C-4068, F33615-73-C-4081
PROJ: AF-C093
MONITOR: ASD/XR 74-17-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-785
103.

DESCRIPTORS: *JET AIRCRAFT, *AERODYNAMIC STABILITY,
AERODYNAMIC CHARACTERISTICS, AERODYNAMIC FORCES,
AERODYNAMIC CONTROL SURFACES, ANGLE OF ATTACK,
INPUT OUTPUT PROCESSING, COMPUTER APPLICATIONS,
FORTRAN, USER NEEDS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS, COMPUTER AIDED DESIGN

(U)

THIS REPORT DESCRIBES A DIGITAL COMPUTER PROGRAM
WHICH CALCULATES THE LONGITUDINAL AND LATERAL-
DIRECTIONAL STABILITY AND CONTROL DERIVATIVES AND
AIRCRAFT FLYING QUALITIES FOR A MACH NUMBER RANGE
FOR 0 - 3.0. THE REPORT CONSISTS OF FOUR VOLUMES.
VOLUME IV, PROGRAM ASSESSMENT/CORRELATION
REPORT, PRESENTS THE RESULTS OF THE CORRELATION
STUDIES AND CONCLUSIONS PERTAINING TO THE VALIDITY
OF THE METHODOLOGY. (MODIFIED AUTHOR
ABSTRACT)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 139 14/4 9/2
APPLIED SCIENCE ASSOCIATES INC DENVER COLO

COMPUTER GENERATED TROUBLESHOOTING TREES:
THE PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 96P PIEPER, WILLIAM J. IPINKUS,
ALLEN L. ;
CONTRACT: F33615-72-C-1682
MONITOR: AFHRL TR-74-20(III)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *RELIABILITY(ELECTRONICS),
*COMPUTER PROGRAMS, COMPUTER PROGRAMMING,
FORTRAN

(U)

IDENTIFIERS: *TROUBLESHOOTING TREES, *FAULT
ISOLATION, FAULT DETECTION, FAULT TOLERANT
COMPUTING, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT DESCRIBES THE DEVELOPMENT, USE, AND
TRYOUT OF A COMPUTER PROGRAM TO PREPARE
TROUBLESHOOTING TREES BY COMPUTER. THE PROGRAM
INPUTS INFORMATION ON THE SYSTEM DATA FLOW, COMPONENT
RELIABILITIES, AND COSTS OF AVAILABLE TESTS. AN
ITERATIVE PROCESS IS THEN USED TO SELECT THE MOST
EFFICIENT SEQUENCE OF TESTS TO ISOLATE ALL POSSIBLE
FAULTS. THIS IS ACCOMPLISHED BY COMPUTING AN INDEX
OF INFORMATION GAINED PER UNIT COST (IGUC) FOR EACH
TEST. THE TEST WITH THE HIGHEST IGUC IS SELECTED
AS THE FIRST TEST IN THE TREE. THE IGUCS ARE
THEN RECOMPUTED FOR THE REMAINING TESTS AND THE TEST
WITH THE HIGHEST IGUC IS ADDED AS THE NEXT STEP IN
THE TREE. THE PROCESS IS CONTINUED UNTIL A TREE IS
DEVELOPED WHICH WILL ISOLATE ALL FAULTS IN THE
SYSTEM. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 785 187 5/2 9/2
MOORE SCHOOL OF ELECTRICAL ENGINEERING PHILADELPHIA PA

TOS: A TEXT ORGANIZING SYSTEM. VOLUME II.
APPENDIXES, A-C.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 74 430P KOYHEN, KEMAL ;
REPT. NO. 75-01-VOL2
CONTRACT: N00014-67-A-0216-0014
PROJ: NR-049-153

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-783
986.

DESCRIPTORS: *DATA PROCESSING, *CLASSIFICATION,
INDEXING, INDEX TERMS, MANUALS, FORTRAN,
COMPUTER PROGRAMMING
IDENTIFIERS: *AUTOMATIC INDEXING, FORTRAN 4
PROGRAMMING LANGUAGE

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THE REPORT PRESENTS APPENDICES TO THE BASIC VOLUME,
WHICH DESCRIBES A COMPUTER PROGRAM THAT CAN INDEX
AUTOMATICALLY MATERIALS IN THE SOCIAL SCIENCES. THE
APPENDICES INCLUDE A USER'S MANUAL, A PROGRAMMER
GUIDE, AND PROGRAM DESCRIPTIONS AND FLOWCHARTS.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 265 21/5
HAMILTON STANDARD WINDSOR LOCKS CONN

MULTIPLE FAULT GAS PATH ANALYSIS APPLIED
TO TF30-P-408 ENGINE DATA.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 129P KOS, JOSEPH M. ;
REPT. NO. HSEK-6587
CONTRACT: N00140-74-C-0582

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *TURBOFAN ENGINES,
*DIAGNOSIS(GENERAL), TURBINE PARTS, GAS FLOW,
PERTURBATIONS, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: T-30 ENGINES, TF-30-P-408 ENGINES,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THIS REPORT PRESENTS THE RESULTS OF A STUDY MADE TO
DEMONSTRATE THE VALIDITY AND VERSATILITY OF GAS PATH
ANALYSIS AS APPLIED TO MULTIPLE FAULT GAS TURBINE
ENGINE DIAGNOSTICS. ACTUAL ENGINE TEST DATA AT
STATIC AND SIMULATED MACH NUMBER CONDITIONS IS
USED. FROM ELEVEN DIAGNOSTIC SYSTEMS CONSIDERED,
THE TWO BEST SYSTEMS ARE PRESENTED AS FORTRAN IV
SUBROUTINES FOR USE BY NAPTIC. RESULTS BASED ON
BOTH EMPIRICAL AND THEORETICAL CONSIDERATIONS ARE
PRESENTED. (AUTHOR)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 360 20/1 1/3 15/5
BOLT PERANEK AND NEWMAN INC CANOGA PARK CALIF

COMMUNITY NOISE EXPOSURE RESULTING FROM
AIRCRAFT OPERATIONS: COMPUTER PROGRAM
OPERATOR'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 217P REDDINGIUS, NICOLAAS H. ;
REPT. NO. RBN-2582
CONTRACT: F33615-74-C-4160
PROJ: AF-7231
TASK: 723104
MONITOR: AMRL TR-73-108

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MILITARY FACILITIES, *AIRCRAFT NOISE,
FLIGHT, NOISE POLLUTION, RUNWAYS, NAVIGATIONAL
AIDS, FORTRAN, USER NEEDS, COMPUTER
PROGRAMMING

(U)

IDENTIFIERS: *NOISE EXPOSURE, GROUND RUNUP,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

A USER ORIENTED DESCRIPTION OF A COMPUTER PROGRAM
TO CALCULATE COMMUNITY NOISE EXPOSURE DUE TO AIRCRAFT
OPERATIONS IS GIVEN. FORMAL DEFINITION OF ALL
ALLOWABLE CARD SEQUENCES AND EXAMPLES OF CODING FOR
ALL TYPES OF AIRCRAFT OPERATIONS ARE PRESENTED AS
WELL AS GUIDELINES FOR EFFICIENT USE. THE PROGRAM
WHICH IS ENTIRELY WRITTEN IN FORTRAN 4 PRODUCES
PRINTED OUTPUT AS WELL AS OUTPUT COMPATIBLE WITH THE
CALCOMP GPCP CONTOURING PACKAGE. A DISCUSSION
OF THE ARCHITECTURE OF THE PROGRAM AND THE
INTERPRETATION OF THE OUTPUT CAN BE FOUND IN
COMPANION VOLUMES AMRL-TR-109 AND AMRL-TR-73-
105, RESPECTIVELY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 392 17/7 15/5
AEROSPACE GUIDANCE AND METROLOGY CENTER NEWARK AIR FORCE
STATION OHIO

A DESCRIPTION OF A LIFE CYCLE COST MODEL
FOR INERTIAL NAVIGATION SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 74 50P HEITZLER, THOMAS D. IGENET,
RUSSELL M. I
REPT. NO. AGMC-74-01411

UNCLASSIFIED REPORT

DESCRIPTORS: *INERTIAL NAVIGATION, *AVIONICS,
*LIFE CYCLES, INVENTORY ANALYSIS, COST ANALYSIS,
LOGISTICS PLANNING, INVENTORY CONTROL,
MATHEMATICAL MODELS, COMPUTER PROGRAMS,
FORTRAN (U)
IDENTIFIERS: *LOGISTICS MANAGEMENT, FORTRAN 4
PROGRAMMING LANGUAGE (U)

THE PURPOSE OF THIS REPORT IS TO DOCUMENT A
MATHEMATICAL MODEL THAT HAS BEEN USED TO EVALUATE THE
POTENTIAL LIFE CYCLE COSTS OF INERTIAL NAVIGATION
SYSTEMS. THE MODEL HAS BEEN PREVIOUSLY PUBLISHED;
HOWEVER, BECAUSE OF SENSITIVE DATA, IT HAD A LIMITED
DISTRIBUTION. THIS REPORT INCLUDES DEFINITIONS OF
ALL INPUT AND OUTPUT PARAMETERS, EXPLANATIONS OF
ALGORITHMS FOR THE MODEL, A SAMPLE RUN USING
FICTITIOUS DATA AND A PROGRAM LISTING WHICH INCLUDES
A SENSITIVITY STUDY. (AUTHOR) (U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 496 14/4 12/1
ARMY MATERIEL COMMAND TEXARKANA TEX INTERN TRAINING
CENTER

ANALYTICAL EVALUATION OF A SPARING TECHNIQUE
APPLICABLE DURING EARLY CONFIGURATION
DEVELOPMENT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 134P VANDEN BOSCH, WILLIAM J. ;
REPT. NO. USAMC-ITC-02-08-73-003

UNCLASSIFIED REPORT

DESCRIPTORS: *RELIABILITY, *STATISTICAL ANALYSIS,
SPARE PARTS, MAINTAINABILITY, PROBABILITY DENSITY
FUNCTIONS, NORMAL DENSITY FUNCTIONS, ANALYSIS OF
VARIANCE, FAILURE, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: WEIBULL DENSITY FUNCTIONS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

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THIS PAPER ESTABLISHES THE ACCURACY OF A SPARING
TECHNIQUE APPLICABLE DURING EARLY CONFIGURATION
DEVELOPMENT BY COMPARING IT TO AN ANALYTICAL SOLUTION
OF THE SPARING PROBLEM. TESTING OF THE PREDICTION
TECHNIQUE WAS ACCOMPLISHED FOR THREE BASIC TIME TO
FAILURE DENSITY FUNCTIONS UNDER A WIDE RANGE OF
SPARING CONFIGURATION ARRANGEMENTS. QUANTITIES
VARIED FOR EACH PROBABILITY DENSITY FUNCTION INCLUDED
TYPE OF SPARING CONFIGURATION, LENGTH OF SPARING TIME
INTERVAL, AND TYPE OF SPARING PROCESS. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOH09

AD- 785 500 15/5 9/1
ARMY MATERIEL COMMAND TEXARKANA TEX INTERN TRAINING
CENTER

DETERMINATION OF AN OPTIMAL ALLOCATION OF
MODULES TO COMPONENTS USING THE GENERALIZED
ELECTRONICS MAINTENANCE MODEL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APP 74 29P BEESON, JAMES R. ;
REPT. NO. USAMC-ITC-02-08-73-015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MODULES(ELECTRONICS), *LOGISTICS
SUPPORT, SPARE PARTS, MAINTENANCE, ALLOCATIONS,
ELECTRONIC EQUIPMENT, INVENTORY CONTROL, COMPUTER
PROGRAMMING, FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS PAPER PRESENTS TWO TECHNIQUES TO BE USED WITH
THE GENERALIZED ELECTRONICS MAINTENANCE MODEL TO
FACILITATE SYSTEM DESIGN BY MINIMIZING MAINTENANCE
SUPPORT COST. THE METHODS DEVELOPED CAN BE USED TO
OPTIMALLY ALLOCATE MODULES TO COMPONENTS WITH THE
LOWEST LIFE CYCLE COST BEING THE CRITERIA FOR
OPTIMALITY. THE COMPUTER TECHNIQUES PRESENTED
REQUIRES A GOOD WORKING KNOWLEDGE OF THE GEMM
MODEL. IN ADDITION TO A DESCRIPTION OF THE
TECHNIQUES PRESENTED, AN EXAMPLE OF EACH METHOD IS
GIVEN TO ILLUSTRATE THE INPUT REQUIREMENTS AND OUTPUT
GENERATED. (AUTHOR)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 785 544 19/5 9/2
ROCK ISLAND ARSENAL ILL GENERAL THOMAS J RODMAN LAB

A DIGITAL COMPUTER MODEL OF AN IDEALIZED
STABILIZED SIGHT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 73 32P KASTEN, R. E. ; MANDZY, J. ;
BURNHAM, C. ALAN ;
REPT. NO. RIA-R-RR-T-2-59-73
PROJ: DA-1-T-061101-A-91-A

UNCLASSIFIED REPORT

DESCRIPTORS: *TANK TURRETS, *GYROSCOPIC SIGHTS,
GUNS, GYRO STABILIZERS, FIRE CONTROL SYSTEMS,
TRANSFER FUNCTIONS, DIGITAL SIMULATION, COMPUTER
PROGRAMS, FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, IBM
360/65 COMPUTERS, STABILIZED SIGHTS

(U)

ERRORS CONTRIBUTED BY SIGHT LINE STABILIZATION ARE
OFTEN NEGLIGIBLE IN WEAPON SYSTEMS INCORPORATING
STABILIZED SIGHTS. IN CONSTRUCTING PERFORMANCE
MODELS OF THESE SYSTEMS, IT IS DESIRABLE TO MINIMIZE
MODELING DETAIL. THIS IS ACCOMPLISHED HERE BY
MODELING AN IDEALIZED STABILIZED SIGHT WHOSE SIGHT
LINE RESPONDS ONLY TO GUNNER COMMANDS. THIS MODEL
IS EQUALLY APPLICABLE FOR AIR-TO-GROUND OR GROUND-TO-
AIR SYSTEMS. GUNNER, A DIGITAL COMPUTER SIMULATION
OF THE IDEALIZED SIGHT MODEL APPLIED TO A SURFACE
WEAPON SYSTEM, IS DISCUSSED IN DETAIL. A COMPLETE
LISTING OF THE GUNNER SUBROUTINE, WRITTEN IN
FORTRAN IV, USABLE ON AN IBM COMPUTER 360/65, IS
INCLUDED. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 181 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
1. THREE DIMENSIONAL RESPONSE OF DEEP
WATER MOORING LINES IN STEADY STATE
FLOWS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
DEC 72 243P DOMINGUEZ, RICHARD F. OWENS,
GEORGE E. I
REPT. NO. COE-157
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-786
182.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN
IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THIS STUDY IS AN ATTEMPT TO SYSTEMATICALLY
INVESTIGATE THE BEHAVIOR OF SELECTED CABLE PARAMETERS
IN RELATION TO DEEP WATER MOORING APPLICATIONS UNDER
THREE DIMENSIONAL, STEADY-STATE LOADING CONDITIONS.
THE EMPHASIS OF THIS REPORT HAS BEEN PLACED ON
QUANTIFYING THE THREE DIMENSIONAL GEOMETRY AND
REACTIONS OF A MOORING LINE IN A DIRECTIONAL UNIFORM
CURRENT FOR SPECIFIC COMBINATIONS OF SUPPORT
POSITIONS, CABLE LENGTH, WEIGHT AND DIAMETER.
INCLUDED IS A STUDY OF BOTH NEGATIVELY AND
NEUTRALLY BUOYANT CABLES FOR WATER DEPTHS RANGING
FROM 5,000 TO 25,000 FT. THE SOLUTION PROCEDURE
INCORPORATES A FINITE ELEMENT REPRESENTATION OF THE
CABLES AND THE METHOD OF IMAGINARY REACTIONS FOR THE
CALCULATION OF THE EQUILIBRIUM CONFIGURATIONS. THE
ACCURACY OF THIS PROCEDURE IS EXAMINED FOR THE
CATENARY LOADING THROUGH A COMPARISON OF CABLE
CONFIGURATIONS AND SUPPORT REACTIONS OBTAINED FROM A
DIRECT SOLUTION OF THE CATENARY EQUATIONS AND FROM
THE USE OF THE FINITE ELEMENT REPRESENTATION.
(MODIFIED AUTHOR ABSTRACT)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 182 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
II. BI AND QUAD CABLE ARRAYS SYSTEMS--
SUMMARY DATA REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
JAN 73 410P DOMINGUEZ, RICHARD F. ;
REPT. NO. COE-159-VOL-2
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

AVAILABILITY: MICROFICHE COPIES ONLY.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD-786
183.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT DOCUMENTS AND SUMMARIZES IN TABULAR
FORM THE DATA DEVELOPED IN THE EVALUATION OF BOTH A
BI AND QUAD-MOORED CABLE ARRAY SYSTEM
CONTAINING A LARGE CYLINDRICAL MEMBER. PARAMETRIC
VARIANCE OF BOTH PHYSICAL AND ENVIRONMENTAL
PARAMETERS, TO DEFINE EACH SYSTEMS DISPLACEMENT
SUSCEPTIBILITY UNDER DIRECTIONAL HYDRODYNAMIC
LOADINGS WERE CARRIED OUT. THE PHYSICAL PARAMETERS
OF INTEREST INCLUDED THE CYLINDER LENGTH AND
DIAMETER; ANCHOR SPAN; CABLE LENGTH, WEIGHT, AND
DIAMETER; AND THE DEGREE OF POSITIVE BUOYANCY PLACED
ON THE SYSTEM. STRUCTURAL SYSTEMS WITH NOMINAL
HEIGHTS OF 5,000, 10,000, AND 20,000 FT. WERE
CONSIDERED. THE ENVIRONMENTAL PARAMETERS OF
INTEREST WERE THE CURRENT VELOCITY AND DIRECTION.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 183 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
III. PARAMETRIC EVALUATION OF BI AND QUAD
CABLE ARRAY SYSTEMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
FER 73 64P DOMINGUEZ, RICHARD F. ;
DECASTONGRENE, RUSSELL O. ;
REPT. NO. COE-159-VOL-3
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD-786
184.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT SUMMARIZES THE RESULTS OF A PARAMETRIC
SENSITIVITY STUDY OF TWO CABLE ARRAY SYSTEMS. THE
ARRAYS ARE COMPOSED OF EITHER TWO OR FOUR MOORING
LEGS CONNECTED TO A LARGE CYLINDRICAL MEMBER, WHICH
IS CONSIDERED TO BE RIGID. THE PARAMETERS SELECTED
FOR DETERMINING THEIR EFFECT ON THE RESPONSE
CHARACTERISTICS OF EACH SYSTEM WHEN SUBJECTED TO
DIRECTIONAL CURRENTS, INCLUDE: CABLE DIAMETER AND
WEIGHT; LENGTH OF THE CYLINDRICAL MEMBER; BUOYANCY;
ANCHOR SPAN AND ARRAY HEIGHT CORRESPONDING TO NOMINAL
VALUES RANGING FROM 5,000 TO 20,000 FT. EACH
COMBINATION OF PARAMETERS DEFINING A PARTICULAR ARRAY
WAS SUBJECTED TO A UNIFORM CURRENT WHICH WAS VARIED
BOTH IN MAGNITUDE AND DIRECTION. THE ARRAY WAS THEN
ANALYZED TO DETERMINE THIS SYSTEM'S CONFIGURATION,
AND THE LOADS DEVELOPED BOTH INTERNALLY AND
EXTERNALLY ON THE STRUCTURE. (MODIFIED AUTHOR
ABSTRACT)

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UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 184 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
IV. A COMPUTER PROGRAM FOR ANALYZING THE
STEADY STATE RESPONSE OF BI AND QUAD
CABLE ARRAYS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
DEC 72 52P DOMINGUEZ, RICHARD F. MUSKA,
NANCY M. ;
REPT. NO. COE-160
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-786
185.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

DESCRIBED ARE TWO COMPUTER PROGRAMS, BIMORC AND
QUADMORC, WHICH WERE DEVELOPED TO EVALUATE THE
SPATIAL CONFIGURATION OF A BI-MOORED AND QUAD-
MOORED CABLE ARRAY, RESPECTIVELY, CONTAINING A
CYLINDRICAL MEMBER. ANALYSIS IS BASED ON A FINITE
ELEMENT REPRESENTATION OF THE CABLES, USING A LUMPED
PARAMETER TREATMENT OF ALL EXTERNAL FORCES ACTING ON
THE SYSTEM. THE LOADINGS WHICH ARE ASSUMED, ARE
THAT OF THE DEAD WEIGHT OF THE STRUCTURE AND THE
HYDRODYNAMIC FORCES ON THE CABLES AND MOORED MEMBER
PRODUCED BY DIRECTIONAL CURRENTS. LISTING OF THE
COMPUTER PROGRAMS IS GIVEN ALONG WITH AN EXAMPLE OF
THE USAGE OF EACH. BOTH PROGRAMS ARE WRITTEN IN
FORTRAN 4. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 185 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
V. THE RESPONSE OF A TRI-MOORED CABLE
ARRAY WITH AN INCLUDED DEFORMABLE CYLINDRICAL
MEMBER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
FEB 73 71P DOMINGUEZ, RICHARD F. ; GREER,
GERAL G. ;
REPT. NO. COE-161
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, AD-786
186.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN,
COMPUTER PROGRAMMING

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT CONCERNS ITSELF WITH THE ANALYTICAL
PROBLEM OF EVALUATING THE EQUILIBRIUM CONFIGURATION
OF SUBSURFACE CABLE STRUCTURES CONTAINING LARGE,
RIGID OR DEFORMABLE BODIES WITHIN THE CABLE ARRAY.
THE GENERAL ANALYTICAL PROBLEM IS FORMULATED AND A
MEANS FOR SOLUTION PROVIDED WHICH EXTENDS THE REALM
OF THE APPLICATION OF THE NUMERICAL PROCEDURE TERMED
THE METHOD OF IMAGINARY REACTIONS, TO NON-CONCURRENT
CABLE SYSTEMS. THE GENERAL PROCEDURE PUT FORTH IS
APPLICABLE TO THE THREE DIMENSIONAL ANALYSIS OF
MOORED INSTRUMENTATION ARRAYS, SURFACE SHIPS,
PLATFORMS AND OTHER SIMILAR MOORED STRUCTURES.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 186 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
VI. A COMPUTER PROGRAM FOR ANALYZING THE
STEADY STATE CONFIGURATION OF A TRI-MOORED
ARRAY WITH INCLUDED RIGID AND DEFORMABLE
MEMBERS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
JAN 73 51P DOMINGUEZ, RICHARD F. ; GREER,
GERAL G. ILIAU, ANN C. ;
REPT. NO. COE-162
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE COPIES ONLY.
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 7, AD-786
187.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTICITY, HYDRODYNAMIC CODES, FORTRAN,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE, TRIDEF COMPUTER
PROGRAM

(U)

A COMPUTER PROGRAM, TRIDEF, IS DESCRIBED WHICH
WAS DEVELOPED TO EVALUATE THE SPACIAL CONFIGURATION
OF A TRI-MOORED CABLE ARRAY CONTAINING A CYLINDRICAL
MEMBER. THE MEMBER MAY BE CONSIDERED TO BE RIGID
OR ELASTICALLY DEFORMABLE. ANALYSIS IS BASED ON A
FINITE ELEMENT REPRESENTATION OF A CABLE, USING A
LUMPED PARAMETER TREATMENT OF ALL EXTERNAL FORCES
ACTING ON THE SYSTEM. THE LOADINGS WHICH ARE
ASSUMED, ARE THAT OF THE DEAD WEIGHT OF THE STRUCTURE
AND THE HYDRODYNAMIC FORCES ON THE CABLES AND MOORED
MEMBER PRODUCED BY DIRECTIONAL CURRENTS. LISTINGS
OF THE COMPUTER PROGRAM ALONG WITH AN EXAMPLE OF ITS
USAGE IS GIVEN. THE PROGRAM IS WRITTEN IN
FORTRAN 4. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 187 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
VII. THE STEADY-STATE BEHAVIOR OF A
PYRAMID ARRAY SYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
FEB 73 60P DOMINGUEZ, RICHARD F. ; GREER,
GERAL G. ; LIAU, ANN C. ;
REPT. NO. COE-163
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 8, AD-786
188.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTICITY, HYDRODYNAMIC CODES, FORTRAN,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE, PYRAMID COMPUTER
PROGRAM

(U)

THE METHODOLOGY DEVELOPED TO STATICALLY ANALYZE A
NON-CONCURRENT CABLE ARRAY COMPOSED OF 6 CABLES
WITHIN WHICH IS MOORED A LARGE, RIGID, DELTA ELEMENT
IS PRESENTED. ANALYSIS IS BASED ON A FINITE
ELEMENT REPRESENTATION OF THE CABLE, USING A LUMPED
PARAMETER TREATMENT OF ALL EXTERNAL FORCES ACTING ON
THE SYSTEM. THE LOADINGS WHICH ARE ASSUMED CONSIST
OF THE DEAD WEIGHT OF THE STRUCTURE AND HYDRODYNAMIC
FORCES PRODUCED BY DIRECTIONAL CURRENTS ON THE CABLES
AND MOORED MEMBER. A COMPUTER PROGRAM, PYRAMID,
IS DESCRIBED AND DOCUMENTED IN THE REPORT ALONG WITH
AN APPLICATION EXAMPLE TO A 7,000 FT. HIGH CABLE
ARRAY. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 188 13/10
TEXAS A AND M UNIV COLLEGE STATION COASTAL AND OCEAN
ENGINEERING DIV

MECHANICS OF CABLE MOORING SYSTEMS. VOLUME
VIII. THE DYNAMIC RESPONSE OF CABLE
ARRAYS SUBJECT TO LARGE CURRENT INDUCED
DISPLACEMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 71-FEB 73,
FEB 73 77P NUCKOLLS, CHARLES E. ;
DOMINGUEZ, RICHARD F. ;
REPT. NO. COE-164
CONTRACT: N62477-72-C-0055

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 7, AD-786
187.

DESCRIPTORS: *MOORING, *DEEP WATER, *MECHANICAL
CABLES, *PARAMETRIC ANALYSIS, HYDRODYNAMICS,
BUOYANCY, DYNAMIC LOADS, DYNAMIC RESPONSE,
ELASTIC PROPERTIES, HYDRODYNAMIC CODES, FORTRAN,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: *MOORING CABLES, *CABLE ARRAYS,
FINITE ELEMENT ANALYSIS, HYDRODYNAMIC LOADING,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

A TECHNIQUE HAS BEEN DEVELOPED BY MEANS OF WHICH
THE RIGID-BODY RESPONSE OF A BI-MOORED CABLE SYSTEM
TO VARIOUS DYNAMIC EXCITATIONS ENCOUNTERED DURING
DEPLOYMENT AND OPERATION CAN BE PREDICTED. THE
SOLUTION TECHNIQUE COUPLES THE METHOD OF IMAGINARY
REACTIONS FOR SOLVING THE BASIC CABLE PROBLEM WITH
THE USE OF THE PHASE-PLANE GAMMA METHOD FOR SOLVING
THE RIGID-BODY EQUATIONS OF MOTION. THE PROCEDURE
WHICH HAS BEEN DEVELOPED HERE WAS FIRST APPLIED TO A
SIMPLE MODEL WHICH WAS GIVEN INITIAL CONDITIONS BUT
NO EXCITATION. ITS RESPONSE COMPARED FAVORABLY
WITH AN EXPERIMENTAL OBSERVATION, ALTHOUGH SHOWING AN
APPARENT DISCREPANCY IN THE MODELING OF THE DRAG
FORCES. A TYPICAL PROTOTYPE SYSTEM WAS ALSO
ANALYZED. ITS RESPONSE TO BOTH IN-PLANE AND OUT-
OF-PLANE CURRENT PROFILES ARE PRESENTED.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 786 221 1/1
WEST VIRGINIA UNIV MORGANTOWN DEPT OF AEROSPACE
ENGINEERING

THRUST AUGMENTED WING SECTIONS IN POTENTIAL
FLOW.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
AUG 74 14HP WILSON, JAMES DENNIS ;LOTH;
JOHN I. ;CHANDRA, SUBRATO ;
REPT. NO. TR-25
CONTRACT: N00014-68-A-0512
PROJ: NR-215-163

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *WINGS, *THRUST AUGMENTATION,
*CONTROL JETS, AIRFOILS, INCOMPRESSIBLE FLOW,
EJECTORS, JET FLAPS, MATHEMATICAL MODELS,
COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

A METHOD IS PRESENTED FOR CALCULATING THE
INCOMPRESSIBLE, POTENTIAL FLOW FOR AN ARBITRARY
THRUST AUGMENTED WING SECTION, POSSIBLY EXPERIENCING
INFLOW OVER PORTIONS OF ITS SURFACE. THE SOLUTION
INCLUDES THE SHAPE OF AN INVISCID JET LEAVING THE
AIRFOIL CALCULATED BY AN AUTOMATIC ITERATION
PROCEDURE. THE PROBLEM IS FORMULATED BY COVERING
THE AIRFOIL-JET SURFACE WITH LINE SEGMENTS WHICH
CARRY VELOCITY DISCONTINUITY DISTRIBUTIONS AND
SATISFY THE BOUNDARY CONDITION ON VELOCITY AT THE
MIDPOINTS OF THE SEGMENTS. APPLYING THE BOUNDARY
CONDITION FOR A PARTICULAR JET SHAPE LEADS TO A SET
OF LINEAR ALGEBRAIC EQUATIONS TO BE SOLVED FOR THE
VELOCITY DISCONTINUITY STRENGTHS. THE FINAL JET
GEOMETRY IS FOUND WHEN THE NET PRESSURE FORCE FOR
EACH SET OF SURFACE ELEMENTS ON THE FRONT AND BACK OF
THE JET IS BALANCED BY THE CENTRIFUGAL FORCE ACTING
ON THE FLUID WITHIN THE JET AT THE CORRESPONDING
LOCATION. (MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 787 292 9/1 20/14
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GUIDANCE AND
CONTROL DIRECTORATE

THE TRANSIENT CURRENT INDUCED ON A
CONDUCTING CYLINDER BY AN EMP PLANE WAVE
WITH APPLICATIONS TO CABLE DRIVER DESIGN. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 74 63P GREENE, HUGH W. ; HOLDER, J.
DARHYL ; TSAI, LEONARD L. ;
REPT. NO. RG-7508

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTRIC CABLES, *ELECTROMAGNETIC
PULSES, *ELECTROMAGNETIC SHIELDING, TRANSIENTS,
PLANE WAVES, FOURIER TRANSFORMATION, COMPUTER
PROGRAMS, FORTRAN, RADIATION HARDENING (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6600 COMPUTERS (U)

THE CURRENT EXCITED ON AN INFINITE PERFECTLY
CONDUCTING CYLINDER BY AN INCIDENT ELECTROMAGNETIC
PULSE PLANE WAVE IS ANALYZED USING FOURIER
TRANSFORM TECHNIQUES. TWO METHODS, EIGENFUNCTION
SERIES SOLUTION AND MOMENT METHODS, ARE USED
INDEPENDENTLY TO CALCULATE THE CURRENTS IN THE
FREQUENCY DOMAIN. TIME DOMAIN CYLINDER CURRENTS
ARE FOUND BY INVERSE TRANSFORMING THE EIGENFUNCTION
SERIES RESULTS. THESE ARE COMPUTED AT VARIOUS
ASPECTS ANGLES ON THE CYLINDER FOR THREE DIFFERENT
CYLINDER SIZES. THE APPARENT ROTATIONAL ASYMMETRY
AND INCREASE IN RISE TIME FROM THE THEORETICAL
SOLUTION SHOULD BE USEFUL IN IMPROVING CABLE DRIVER
DESIGN. A NUMBER OF POSSIBLE EXTENSIONS OF THIS
PROBLEM ARE GIVEN TOGETHER WITH AN APPROACH TO
CORRELATE SIMULATOR AND CABLE DRIVER DATA.
(AUTHOR) 1 (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 787 362 15/5 9/2
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J

TACTICAL SIMULATION (TACSIM). A PROGRAM TO
EVALUATE THE TACFIRE MAINTENANCE
SUPPORT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 73 197P WOOD, JOHN W. , JR;
REPT. NO. ECOM-4175

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.

DESCRIPTORS: *LOGISTICS SUPPORT, *COMPUTER PROGRAMS,
ELECTRONIC EQUIPMENT, LIFE CYCLES,
RELIABILITY(ELECTRONICS), MAINTAINABILITY,
ARTILLERY, FORTRAN (U)
IDENTIFIERS: TACSIM COMPUTER PROGRAM, RESOURCE
ALLOCATION, FORTRAN 4 PROGRAMMING LANGUAGE (U)

LIFE CYCLE LOGISTICAL SUPPORT COSTS HAVE RANGED AS
HIGH AS ONE HUNDRED TIMES GREATER THAN THE ORIGINAL
PROCUREMENT COSTS OF LARGE SCALE ELECTRONIC SYSTEMS.
THE INTERACTION BETWEEN DESIGN PARAMETERS AND
LOGISTICAL SUPPORT PARAMETERS PROVIDE PROJECT
MANAGERS WITH A TRADEOFF ANALYSIS OF THE RESOURCE
ALLOCATIONS VERSUS TIME AND AVAILABILITY CONSTRAINTS.
TACSIM, AN ACRONYM FOR TACTICAL SIMULATION, IS A
FOUR DIVISION DEPLOYED TYPE CORPS SIMULATION,
SPECIFICALLY DESIGNED TO EVALUATE THE LOGISTICAL
SUPPORT PARAMETERS AS A FUNCTION OF THE MEAN TIME
BETWEEN FAILURE (MTBF). GIVEN AN OPTIMAL
MAINTENANCE MANAGEMENT POLICY FROM AN ANALYTICAL
MODEL, SUCH AS, THE GENERALIZED ELECTRONIC
MAINTENANCE MODEL (GEMM), TACSIM FORTRAN
SUBROUTINES CONSTRUCTS PROBABILITY DISTRIBUTIONS
BASED ON RELIABILITY TEST DATA AND/OR ENGINEERING
ESTIMATES. THE MAIN GENERAL PURPOSE
SIMULATION SYSTEM V PROGRAM SIMULATES FAILURES
AT CORPS BATTALION, CORPS BATTERY, DIVISION
FDC, DIVISION BATTALION AND DIVISION
BATTERY LEVELS OVER THE TEN YEAR LIFE CYCLE OF THE
TOTAL SYSTEM. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- R45 604 1/3 20/11 9/2
BOEING CO RENTON WASH COMMERCIAL AIRPLANE DIV

RANDOM-VIBRATION ANALYSIS SYSTEM FOR
COMPLEX STRUCTURES. PART I: ENGINEERING
USER'S GUIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 66-DEC 67,
NOV 68 209P LAGERQUIST, D. R. ; JACOBS,

L. D. ;
REPT. NO. D6-23145-PT-1
CONTRACT: AF 33(615)-5155
PROJ: AF-1471
TASK: 147101
MONITOR: AFFDL TR-68-43-PT-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRFRAMES, VIBRATION); (*SONIC FATIGUE,
COMPUTER PROGRAMMING), MATHEMATICAL ANALYSIS, HANDBOOKS,
STRUCTURAL PROPERTIES, STRESSES, ACOUSTIC PROPERTIES,
LOADS(FORCES), PRESSURE, RESPONSE, NOISE GENERATORS,
MODELS(SIMULATIONS), MATRICES(MATHEMATICS) (U)
IDENTIFIERS: FINITE ELEMENT METHOD, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE (U)

A USER'S GUIDE IS PRESENTED FOR A COMPUTER PROGRAM
DEVELOPED TO AID IN THE DESIGN OF SONIC-FATIGUE-
RESISTANT AIRCRAFT STRUCTURE. THE PROGRAM EMPLOYS
MATRIX METHODS TO CALCULATE STATISTICAL MEASUREMENTS
OF RESPONSE (DEFLECTION AND STRESS) FOR COMPLEX
STRUCTURE SUBJECTED TO PRESSURE LOADS RANDOM IN BOTH
TIME AND SPACE. THE PROGRAM IS IN TWO PHASES.
FINITE-ELEMENT METHODS ARE USED IN THE FIRST PHASE
TO DETERMINE STRUCTURAL CHARACTERISTICS SUCH AS
FLEXIBILITY, NATURAL FREQUENCIES, AND MODES OF
VIBRATION. IN THE SECOND PHASE, A CROSS-POWER
SPECTRAL DENSITY LOADING FUNCTION, IS GENERATED AND
COMBINED WITH STRUCTURAL CHARACTERISTICS TO COMPUTE
RESPONSE. EITHER CROSS POWER SPECTRAL DENSITY OR
JOINT STATISTICAL MOMENTS, INCLUDING SECOND SPECTRAL
MOMENTS USEFUL IN FATIGUE ANALYSIS, CAN BE COMPUTED
FOR RESPONSE. THE LOADING FUNCTION MODELS A
DECAYED PROGRESSIVE WAVE TYPICAL OF LABORATORY NOISE
SOURCES. DIFFERENT LOADING FUNCTIONS CAN BE
SUPPLIED BY THE USER, BECAUSE THE PROGRAM IS
CONSTRUCTED IN MODULAR FORM. THE PROGRAM WAS
WRITTEN FOR THE IBM 7094 COMPUTER PRIMARILY IN
FORTRAN IV LANGUAGE WITH A MAP LANGUAGE MATRIX
MANIPULATION MODULE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 857 239 15/6 15/3
URS RESEARCH CO BURLINGAME CALIF

DEBRIS MODEL RESEARCH AND FIVE-CITY STUDY
APPLICATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 68 124P EDMUNDS, JAMES E. ISEARS,
PATRICK M. ;
REPT. NO. URS-686-4

UNCLASSIFIED REPORT

DESCRIPTORS: (•NUCLEAR EXPLOSION DAMAGE, URBAN AREAS),
(•BUILDINGS, NUCLEAR EXPLOSION DAMAGE), DEBRIS, BLAST,
STRUCTURAL PROPERTIES, FIRES, RANGE(DISTANCE),
EPICENTERS, DAMAGE ASSESSMENT, VULNERABILITY, CIVIL
DEFENSE, MATHEMATICAL PREDICTION, COMPUTER PROGRAMMING,
NUCLEAR EXPLOSIONS, AIRBURST, AREA COVERAGE (U)
IDENTIFIERS: ALBUQUERQUE(NEW MEXICO), FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE, OVERPRESSURE, POSTATTACK
OPERATIONS, YIELD(NUCLEAR EXPLOSIONS) (U)

THIS REPORT IS A CONTINUATION OF RESEARCH INTO THE
PREDICTION OF DEBRIS DEPTHS RESULTING FROM A NUCLEAR
ATTACK. THE FIVE-CITY WORK CONSISTS OF
PREDICTING DEBRIS DEPTHS AND BUILDING DAMAGE FOR THE
CITY OF ALBUQUERQUE. THE DEBRIS DEPTH
PREDICTIONS ARE PRESENTED IN REDUCED SCALE IN THIS
REPORT. DAMAGE PREDICTIONS FOR VARIOUS CATEGORIES
OF STRUCTURES AND FOR SEVERAL ATTACK CONDITIONS WERE
FURNISHED TO THE DIKEWOOD CORPORATION, AND ARE
TABULATED TOGETHER WITH A CORRELATION OF URS
CATEGORIES WITH DIKEWOOD CATEGORIES. THE DEBRIS
CHARTS WERE EXPANDED TO COVER A LARGER NUMBER OF
WEAPON YIELDS -- FROM 20 KT TO 50 MT. THE DEBRIS
PREDICTION FOR THE WOOD-FRAME BUILDING CATEGORY WAS
EXAMINED TO DETERMINE WHETHER OR NOT THE DEBRIS
PRODUCTION IS INDEPENDENT OF WEAPON YIELD, AS HAS
BEEN ASSUMED. THE MODEL WAS PROGRAMMED FOR USE
WITH A DIGITAL COMPUTER. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- #68 199 9/2 20/14 18/3 12/1
BRADDOCK DUNN AND McDONALD INC MCLEAN VA

ELECTRA, AN ELECTROMAGNETIC PULSE FORTRAN
PROGRAM (USER'S GUIDE).

(U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 67-DEC 69,
OCT 69 150P BORRELY,JEFFREY A. JONES,
DAVID L. J
REPT. NO. RDM/W-70-03-F-0617
CONTRACT: DAAK02-67-C-0617
PROJ: DASA-NWER-EA-094

UNCLASSIFIED REPORT

DESCRIPTORS: (*NUCLEAR EXPLOSIONS, *ELECTROMAGNETIC
PULSES), (*NUMERICAL METHODS AND PROCEDURES, DIGITAL
COMPUTERS), (*SURFACE BURST, TELLURIC CURRENTS),
(*COMPUTER PROGRAMS, ELECTROMAGNETIC PULSES), DIFFERENCE
EQUATIONS, PARTIAL DIFFERENTIAL EQUATIONS, COMPUTER
PROGRAMMING, AIR, SOILS, ELECTRICAL CONDUCTIVITY,
SUBROUTINES, NONLINEAR SYSTEMS, FLOW CHARTING, MAGNETIC
FIELDS, ELECTRIC FIELDS, ATMOSPHERIC ELECTRICITY,
MAGNETIC TAPE, PUNCHED CARDS (U)
IDENTIFIERS: COMPUTER FILES, COMPUTER PROGRAMS, FINITE
DIFFERENCE THEORY, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

THIS REPORT REPRESENTS THE PARTIAL RESULTS OF AN
EXTENSIVE TECHNICAL PROGRAM THAT BEGAN IN JANUARY
1967 AT THE ARMY MOBILITY EQUIPMENT RESEARCH
AND DEVELOPMENT CENTER (MERDC), FORT
BELVOIR, VIRGINIA. AT THAT TIME, IT WAS
DETERMINED THAT A REQUIREMENT EXISTED, WITHIN THE
ARMY, TO DEVELOP THE CAPABILITY TO CALCULATE THE
ELECTROMAGNETIC PULSE (EMP) ENVIRONMENT THAT IS
PRODUCED WHEN A NUCLEAR EXPLOSION OCCURS ON OR NEAR
THE SURFACE OF THE EARTH. THE DIGITAL COMPUTER CODE
ELECTRA REPRESENTS, FOR THE ARMY, THE CULMINATION
OF THE FIRST PHASE OF THE DEVELOPMENT OF THAT
CAPABILITY. ELECTRA IS A TWO-DIMENSIONAL (TWO
SPACE DIMENSIONS AND TIME) FINITE DIFFERENCE CODE
FOR NUMERICALLY INTEGRATING MAXWELL'S EQUATIONS IN
THE PRESENCE OF AN APPLIED CURRENT DENSITY AND A
FINITELY CONDUCTING EARTH. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 882 386 9/1 9/2 18/8
IBM FEDERAL SYSTEMS DIV OREGON N Y ELECTRONICS SYSTEMS
CENTER

SCPTRE SUPPORT II. VOLUME III. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 17 JUL 68-1
DEC 69,

JUL 70 47P SEDORE, STEPHEN R. ; SENTS,
JOHN R. ;

CONTRACT: F29601-68-C-0117
PROJ: AF-5710, DASA-NWER-TC015
MONITOR: AFWL TR-69-77-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-882 384.

DESCRIPTORS: (*INTEGRATED CIRCUITS, *DAMAGE),
(*SEMICONDUCTOR DEVICES, MATHEMATICAL MODELS),
SUBROUTINES, TRANSISTORS, SEMICONDUCTOR DIODES,
MATRICES(MATHEMATICS), NUMERICAL INTEGRATION,
TRANSIENTS, (U)TRANSIENTS (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
SCPTRE COMPUTER PROGRAM, *TRANSIENT RADIATION
EFFECTS(ELECTRONICS) (U)

THE REPORT CONTAINS A SUMMARY OF THE WORK PERFORMED
UNDER AFAL CONTRACT F29601-68-C-0117. THE
NATURE OF THE REQUIRED TASKS VARIED; THEY INCLUDED
USER ASSISTANCE, DOCUMENTATION, PROGRAM IMPROVEMENT
AND MAINTENANCE, AND EXPLORATORY STUDIES. ALL OF
THE WORK REPORTED HEREIN WAS DONE IN THE LAST QUARTER
OF 1968 AND APPROXIMATELY THE FIRST HALF OF 1969.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 884 597 14/2 20/12
MASSACHUSETTS INST OF TECH CAMBRIDGE LAB FOR INSULATION
RESEARCH

DIELECTRIC SPECTROSCOPY OF HIGH-TEMPERATURE
MATERIALS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 FEB 70-31

JAN 71,

APR 71 35P WESTPHAL, W. B. IGLESIAS,

J. I

CONTRACT: F33615-70-C-1220

PROJ: AF-7371

TASK: 737101

MONITOR: AFML TR-71-66

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ERRATA SHEET INSERTED.

DESCRIPTORS: (*CAPACITANCE BRIDGES, DESIGN), (*SAPPHIRE,
DIELECTRIC PROPERTIES), (*SPINEL, DIELECTRIC
PROPERTIES), HIGH TEMPERATURE, CRYOGENICS, HIGH
FREQUENCY, VERY HIGH FREQUENCY, EXTREMELY HIGH
FREQUENCY, COMPUTER PROGRAMS (U)

IDENTIFIERS: DIELECTRIC SPECTROSCOPY, FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE (U)

MEASURING TECHNIQUES FOR EXTENDING DIELECTRIC-
CONSTANT AND LOSS MEASUREMENTS TO LIQUID-NITROGEN
TEMPERATURE AT 10 MHZ, TO 2000C AT 100 MHZ, AND
TO 1600C AT 90 GHZ ARE DISCUSSED. HIGH-
TEMPERATURE MEASUREMENTS ON SPINEL AND SAPPHIRE ARE
INCLUDED IN THE DIELECTRIC DATA ACCUMULATED DURING
THIS CONTRACT. PROGRAMS IN FORTRAN IV ARE GIVEN
FOR THE GENERAL STANDING-WAVE METHOD CALCULATIONS AND
FOR COVERED HIGH-LOSS SAMPLES ONE-QUARTER WAVELENGTH
FROM THE END OF HOLLOW WAVEGUIDE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- AB7 278 17/2 9/2
COMPUTER SCIENCES CORP FALLS CHURCH VA

AUTODIN SIMULATOR (AUSIM) USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 71 100P ELSAM, ERIC S. VANDERGRIFT,
ROBERT ;
REPT. NO. R407591-4-1
CONTRACT: DCA100-67-C-0016

UNCLASSIFIED REPORT

DESCRIPTORS: (•VOICE COMMUNICATIONS, MATHEMATICAL
MODELS), (•COMPUTER PROGRAMMING, INSTRUCTION MANUALS),
COMPUTER PROGRAMS, PROGRAMMING LANGUAGES, DATA
TRANSMISSION SYSTEMS, INPUT OUTPUT DEVICES,
MATRICES(MATHEMATICS), SIMULATION (U)
IDENTIFIERS: AUTODIN(AUTOMATIC DIGITAL NETWORK),
COROL, COMPUTERIZED SIMULATION, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, IBM 360 COMPUTERS (U)

THE INFORMATION NECESSARY TO USE THE AUTODIN
SIMULATOR (AUSIM) IN THE SIMULATION OF STORE AND
FORWARD NETWORKS IS DESCRIBED. THE INPUT DATA,
CONTROL CARDS, OPTIONS AND PROCEDURES REQUIRED TO
OPERATE THE MODEL ARE SPECIFIED. THE MODEL WAS
DEVELOPED FOR USE IN THE DESIGN AND ANALYSIS OF STORE
AND FORWARD NETWORKS. IT IS PROGRAMMED IN FORTRAN
IV AND COROL AND DESIGNED TO OPERATE ON THE IBM
360 COMPUTER. THE MODEL IS A STEADY STATE SIMULATOR
THAT CALCULATES AVERAGE MESSAGE DELAYS FROM
PROBABILITY EQUATIONS. THE SYSTEM IS DISK ORIENTED
AND CONTAINS VARIOUS DATA PREPARATION AND NETWORK
SIMULATION PROGRAMS. THE PRIMARY INPUTS TO THE
MODEL ARE CARD IMAGE FILES STORED ON DISK THAT
DESCRIBE THE NETWORK AND TRAFFIC TO BE SIMULATED.
DURING THE SIMULATION, OUTPUT RECORDS DESCRIBING
SIGNIFICANT RESULTS OF THE SIMULATION ARE STORED ON
DISK AND ARE THEN PROCESSED BY REPORTS PROGRAMS TO
PRODUCE SELECTED REPORTS OF SUMMARY OR DETAILED
INFORMATION ON THE SIMULATION RESULTS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 889 264 1/3 9/2
BATTELLE MEMORIAL INST COLUMBUS OHIO COLUMBUS LABS

DEMONSTRATION OF COMBINED RELIABILITY
PREDICTION AND VERIFICATION TECHNIQUES TO A
TYPICAL FLIGHT CONTROL SYSTEM. VOLUME I.
DEVELOPMENT AND APPLICATION OF TABULAR SYSTEM
RELIABILITY ANALYSIS TO THE F-111 PITCH
FLIGHT CONTROL SYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 FEB 70-15 FEB 71,
OCT 71 114P BLAZEK, R. H. ; LEVIN, V. ;
THATCHER, R. K. ; THOMAS, R. E. ; EASTERDAY, J.
L. ;

CONTRACT: F33615-70-C-1177

PROJ: AF-8225

MONITOR: AFFDL

TR-71-128-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-889
265L.

DESCRIPTORS: (*FLIGHT CONTROL SYSTEMS, NUMERICAL
ANALYSIS), (*JET FIGHTERS, *FLIGHT CONTROL SYSTEMS),
ADAPTIVE CONTROL SYSTEMS, RELIABILITY, PREDICTIONS,
FLIGHT INSTRUMENTS, COMPUTERS, MATHEMATICAL MODELS,
COMPUTER PROGRAMS

(U)

IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
F-111 AIRCRAFT, MASTR COMPUTER PROGRAM, TABULAR SYSTEM
RELIABILITY ANALYSIS, TASRA (TABULAR SYSTEM RELIABILITY
ANALYSIS)

(U)

THE REPORT IS VOLUME 1 OF A THREE VOLUME FINAL
REPORT DESCRIBING THE EFFORT TO SATISFY THE PROGRAM'S
OBJECTIVE FOR REFINING AND DEMONSTRATING THE
FEASIBILITY OF A COMBINED ANALYTICAL PREDICTION
TECHNIQUE FOR RELIABILITY AND SAFETY. THE TECHNIQUE
IS ENTITLED 'TABULAR SYSTEM RELIABILITY
ANALYSIS (TASRA)', WHICH WAS PREVIOUSLY REPORTED
IN AFFDL-TR-70-81, AD877179. FEASIBILITY OF
THE TECHNIQUE IS DEMONSTRATED USING A TYPICAL MODERN
CONTROL SYSTEM, THE F-111 TRIPLE REDUNDANT,
ADAPTIVE, PITCH AXIS FLIGHT CONTROL SYSTEM. A TASRA
DIGITAL COMPUTER PROGRAM IS WRITTEN IN FORTRAN
LANGUAGE AND IS DESCRIBED IN DETAIL FOR BOTH BATCH
AND TERMINAL USE. THIS VOLUME 1 DESCRIBES THE
REFINEMENT AND DEMONSTRATION EFFORTS INCLUDING A
COMPARISON OF TASRA PREDICTED AND FIELD EXPERIENCE
DATA FOR RELIABILITY AND SAFETY OF THE REFERENCED
SYSTEM. (AUTHOR)

(U)

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UNCLASSIFIED

/ZOM09

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 889 265 1/3 9/2
BATTELLE MEMORIAL INST COLUMBUS OHIO COLUMBUS LABS

DEMONSTRATION OF COMBINED RELIABILITY
PREDICTION AND VERIFICATION TECHNIQUES TO A
TYPICAL FLIGHT CONTROL SYSTEM. VOLUME
II. TABULAR SYSTEM RELIABILITY ANALYSIS
(TASRA) INSTRUCTION MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 FEB 70-15 FEB 71,
OCT 71 93P BLAZEK, R. H. ; THOMAS, R.
E. ; EASTERDAY, J. L. ;
CONTRACT: F33615-70-C-1177
PROJ: AF-8225
MONITOR: AFFDL TR-71-128-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-889 264L
AND VOLUME 3, AD-889 266L.

DESCRIPTORS: (*JFT FIGHTERS, *FLIGHT CONTROL SYSTEMS),
(*COMPUTER PROGRAMS, INSTRUCTION MANUALS), ADAPTIVE
CONTROL SYSTEMS, RELIABILITY, CONFIDENCE LIMITS,
SERVO MECHANISMS, CONTROL SEQUENCES, MATHEMATICAL MODE (U)
IDENTIFIERS: FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
F-111 AIRCRAFT, MASTR COMPUTER PROGRAM, TABULAR SYSTEM
RELIABILITY ANALYSIS, TASRA (TABULAR SYSTEM RELIABILITY
ANALYSIS) (U)

THE REPORT IS VOLUME 2 OF A THREE VOLUME FINAL
REPORT. THE VOLUME IS A TUTORIAL REVIEW OF
TABULAR SYSTEM RELIABILITY ANALYSIS
(TASRA). THE TASRA APPROACH IS DISCUSSED AND
EXAMPLES ARE PROVIDED

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 891 400 19/4 19/5 19/3 9/2
GENERAL ELECTRIC CO PITTSFIELD MASS ORDNANCE SYSTEMS

HITPRO. VOLUME 11. USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 71 156P CUSHMAN, PAUL G. ;
REPT. NO. FDU-71-6-VOL-2
CONTRACT: DAAFD3-69-C-0085
PROJ: DA-1-G-530701-D-380
TASK: 1-G-530701-D-38003
MONITOR: AMSWE-RE 71-63-VOL-2-REV

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-887 457L. SEE
ALSO VOLUME 3, AD-891 401L.

DESCRIPTORS: (*EXTERIOR BALLISTICS, *COMPUTER PROGRAMS),
(*FIRE CONTROL COMPUTERS, *TANKS(COMBAT VEHICLES)),
(*ANTITANK AMMUNITION, EXTERIOR BALLISTICS),
SUBROUTINES, FLOW CHARTING, INSTRUCTION MANUALS,
PROJECTILE TRAJECTORIES, KILL PROBABILITIES, SURFACE
TARGETS, COMPUTER PROGRAMMING, EQUATIONS OF MOTION,
IMPACT PREDICTION, MATHEMATICAL MODELS, SIMULATION (U)
IDENTIFIERS: COMPUTERIZED SIMULATION, FORTRAN, FORTRAN
4 PROGRAMMING LANGUAGE, *HITPRO COMPUTER PROGRAM, M-19
COMPUTERS, M-60 TANKS, M-60A1E2 TANKS, TARGET MOTION
ANALYSIS, XM-19 COMPUTERS (U)

CONTENTS: MAIN PROGRAM AND SUBROUTINE
DESCRIPTIONS: PROGRAM VARIABLES; PROCEDURES
FOR RUNNING PROGRAM; METHODS FOR MAKING
PROGRAM CHANGES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 893 598 8/2 9/2
PENNSYLVANIA RESEARCH ASSOCIATES INC PHILADELPHIA

AUTOMATIC CARTOGRAPHIC SYSTEM MOD II.
VOLUME I. SOFTWARE IMPROVEMENT. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUL 70-JUL 71,
FER 72 176P CONNELLY, DANIEL S. ; JOHNSON,
ROBERT E. ; SAMPSON, GEORGE H. ;
REPT. NO. PRA-U71-1301-VOL-1
CONTRACT: F30602-71-C-0016
MONITOR: RADC TR-71-238-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-893
599L.

DESCRIPTORS: (*MAPPING, DATA PROCESSING), (*COMPUTER
PROGRAMMING, INSTRUCTION MANUALS), CORRECTIONS,
MAINTENANCE, FLOW CHARTING, MAGNETIC TAPE (U)
IDENTIFIERS: ACS(ADVANCED CARTOGRAPHIC SYSTEM),
ADVANCED CARTOGRAPHIC SYSTEM, DMIP COMPUTER PROGRAM,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, INSECT
COMPUTER PROGRAM (U)

IMPROVEMENTS HAVE BEEN MADE TO THE MOD II
ADVANCED CARTOGRAPHIC SYSTEM (ASC) COMPUTER
PROGRAMS CORRECTING PROBLEMS IN TAPE FORMATTING,
CLIPPING, SMOOTHING, EDITING, SYMBOLIZATION, AND
PANELING. ALSO, NEW COMPUTER PROGRAMS RUNNING ON
THE PDP-9 WERE WRITTEN FOR FINDING CARTOGRAPHIC
FEATURE INTERSECTIONS (INSECT) AND FOR THE ARCHIVAL
STORAGE OF DEC TAPES (DMIP). VOLUME I
PROVIDES THE TECHNICAL DOCUMENTATION FOR THESE NEW
PROGRAMS AND FOR THE CHANGES IN EXISTING PROGRAMS.
IT ALSO PROVIDES THE DETAILED OPERATING
INSTRUCTIONS FOR INSECT AND DMIP.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 893 599 8/2 9/2
PENNSYLVANIA RESEARCH ASSOCIATES INC PHILADELPHIA

AUTOMATIC CARTOGRAPHIC SYSTEM MOD II.
VOLUME II. REVISED USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUL 70-JUL 71,
FER 72 125P CONNELLY, DANIEL S. ; JOHNSON,
ROBERT E. ; SAMPSON, GEORGE H. ;
REPT. NO. PRA-U71-1301-VOL-2
CONTRACT: F30602-71-C-0016
MONITOR: RADC TR-71-238-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-893
598L.

DESCRIPTORS: (*MAPPING, DATA PROCESSING), (*COMPUTER
PROGRAMMING, INSTRUCTION MANUALS), MAGNETIC TAPE,
CORRECTIONS, MAINTENANCE, CONTROL SEQUENCES (U)
IDENTIFIERS: ACS(ADVANCED CARTOGRAPHIC SYSTEM),
ADVANCED CARTOGRAPHIC SYSTEM, DMIP COMPUTER PROGRAM,
FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, INSECT
COMPUTER PROGRAM (U)

IMPROVEMENTS HAVE BEEN MADE TO THE MOD II
ADVANCED CARTOGRAPHIC SYSTEM (ACS) COMPUTER
PROGRAMS CORRECTING PROBLEMS IN TAPE FORMATTING,
CLIPPING, SMOOTHING, EDITING, SYMBOLIZATION, AND
PANELING. ALSO, NEW COMPUTER PROGRAMS RUNNING ON
THE PDP-9 WERE WRITTEN FOR FINDING CARTOGRAPHIC
FEATURE INTERSECTIONS (INSECT) AND FOR THE ARCHIVAL
STORAGE OF DEC TAPES (DMIP). VOLUME II IS THE
REVISED USER'S MANUAL FOR MOD II ACS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOH09

AD- 894 590 16/4-1
HUGHES AIRCRAFT CO CANOGA PARK CALIF

CLOSE AIR SUPPORT WEAPON ENGINEERING
DESIGN STUDY. VOLUME VI. MISSILE
SIMULATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 23 SEP-22 DEC 70,
JAN 71 114P WALKER, W. S. ;BLACKSHAW, G.
E. ;KNOWLES, R. W. ;
REPT. NO. HAC-REF-C-2448-VOL-6
CONTRACT: F08635-71-C-0048
PROJ: AF-6708
MONITOR: AFATL TR-71-7-VOL-6

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-520
2831.

DESCRIPTORS: (AIR TO SURFACE MISSILES, TACTICAL AIR
SUPPORT), CLOSE SUPPORT, DESIGN, MODELS(SIMULATIONS),
COMPUTER PROGRAMS, SYSTEMS ENGINEERING, GUIDED MISSILE
LAUNCHERS, GROUND SUPPORT EQUIPMENT, MONTE CARLO METHOD,
DIGITAL COMPUTERS, FLOW CHARTING, COMPILERS,
SUBROUTINES, AUTOMATIC PILOTS, AERODYNAMIC
CHARACTERISTICS, AERODYNAMIC CONTROL SURFACES, LIGHT
HOMING, LASERS, MISS DISTANCE,
TRANSFORMATIONS(MATHEMATICS)

(U)

IDENTIFIERS: AVIONICS, CASW(CLOSE AIR SUPPORT
WEAPONS), CASW(CLOSE AIR SUPPORT MISSILES), CLOSE AIR
SUPPORT WEAPONS, CLOSE AIR SUPPORT MISSILES, COMPUTER
AIDED DESIGN, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE,
GE 435 COMPUTERS, MAVERICK MISSILES, MISSILE
MODIFICATION, SADSAC COMPUTER

(U)

THE OBJECTIVE OF THE ENGINEERING DESIGN STUDY OF
THE CLOSE AIR SUPPORT WEAPON (CASW) WAS TO PROVIDE
DESIGN CONSIDERATIONS FOR THE NEW CLOSE AIR SUPPORT
MISSILE (CASH). THE DERIVATION OF THE MISSILE WAS
UNDERTAKEN BASED ON THE MODIFICATION OF AN EXISTING
MISSILE. THIS STUDY INCORPORATES OPERATIONAL
REQUIREMENT AND WARHEAD EFFECTIVENESS STUDIES FOR
VARIOUS CLOSE AIR SUPPORT TARGETS LEADING TO WARHEAD
AND LAUNCH ENVELOPE RECOMMENDATIONS. A THOROUGH
ANALYSIS OF THE SYSTEM PERFORMANCE AND TERMINAL
ACCURACY WAS CONDUCTED. MISSILE SIMULATION MODELS
AND A SYSTEM DESCRIPTION, INCLUDING MISSILE,
LAUNCHER, AVIONICS, AND AEROSPACE GROUND EQUIPMENT
(AGE) ARE PROVIDED.

(U)

AD-A036 500

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
FORTRAN 4 PROGRAMMING LANGUAGE.(U)
FEB 77

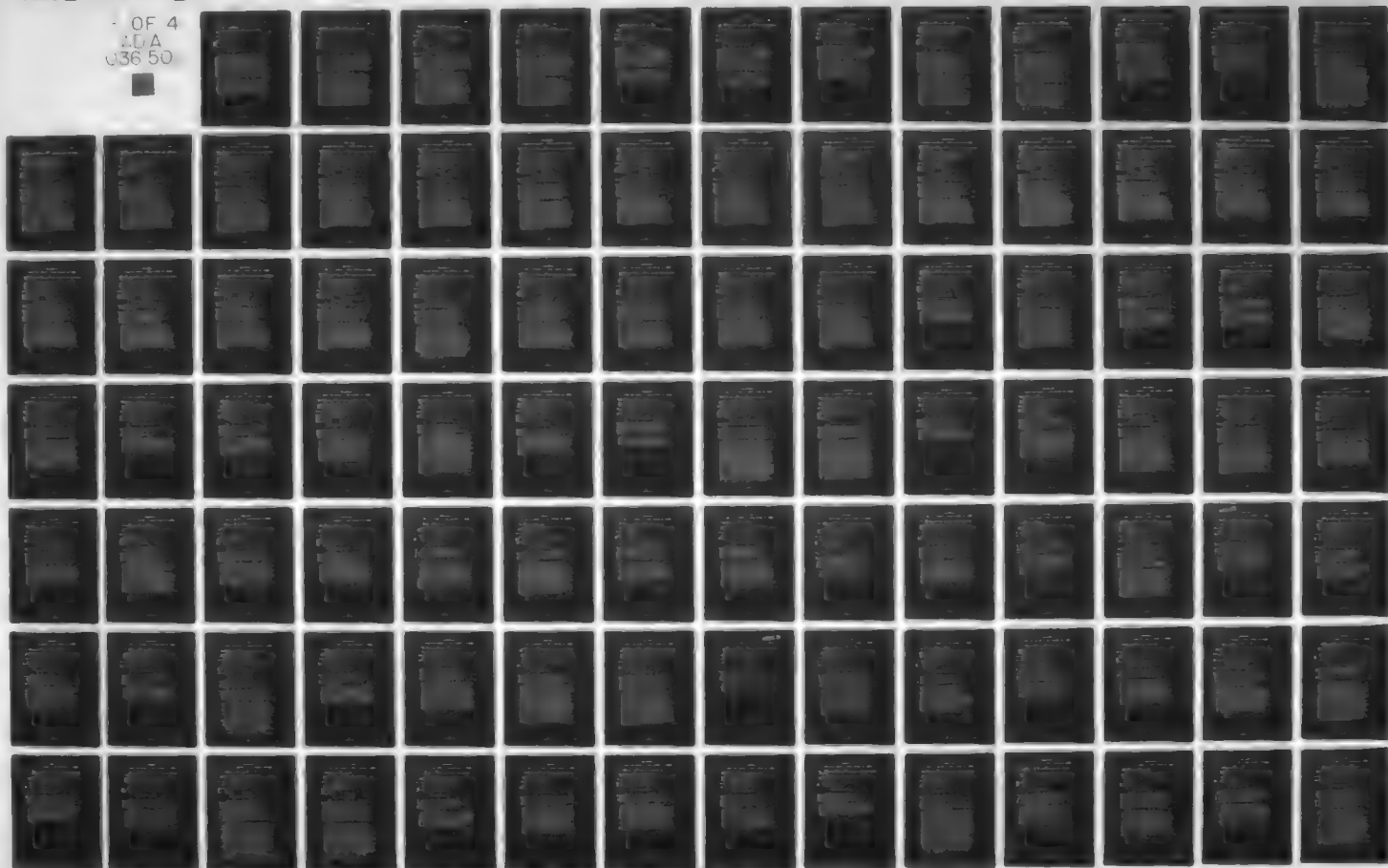
F/G 9/2

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036 500



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 901 513 20/4
FLORIDA UNIV GAINESVILLE

PRELIMINARY REPORT ON EXTRACTING AERODYNAMIC
COEFFICIENTS FROM DYNAMIC DATA.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 71-FEB 72,
MAY 72 IIRP BULLOCK, T. E. ; CLARKSON, M.
H. ; DANIEL, D. C. ;
CONTRACT: F08635-71-C-0080
PROJ: AF-9860, AF-9871
TASK: 986002
MONITOR: AFATL TR-72-52

UNCLASSIFIED REPORT

DESCRIPTORS: (1) NUMERICAL ANALYSIS, AERODYNAMIC
CHARACTERISTICS). (*AERODYNAMIC CONFIGURATIONS,
AERODYNAMIC CHARACTERISTICS), EQUATIONS OF MOTION,
DIFFERENTIAL EQUATIONS, ALGORITHMS, COMPUTER PROGRAMS,
SUBROUTINES, ERRORS, ITERATIONS, DATA, LEAST SQUARES
METHOD, PARTIAL DIFFERENTIAL EQUATIONS,
MATRICES (MATHEMATICS), ANGLE OF ATTACK, MOMENT OF
INERTIA, MOMENTS, PITCH (MOTION), DAMPING,
SPINNING (MOTION), CENTER OF GRAVITY, NOISE, CONVERGENCE,
SEQUENCES (MATHEMATICS) (U)
IDENTIFIERS: *AERODYNAMIC CHARACTERISTICS, CHAPMAN-
KIRK EQUATION, COMPUTER TIME REDUCTION, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE, ONE DEGREE OF FREEDOM,
THREE DEGREES OF FREEDOM (U)

PRELIMINARY RESULTS ON EXTRACTING AERODYNAMIC
COEFFICIENTS FROM DYNAMIC DATA ARE PRESENTED.
EMPHASIS IS ON DETERMINISTIC PARAMETER ESTIMATION
FOR ONE- AND THREE-DEGREE-OF-FREEDOM SYSTEMS. SOME
EFFECTS OF RANDOM NOISE ON EXTRACTED COEFFICIENTS ARE
DESCRIBED. SOME CONVERGENCE PROBLEMS ASSOCIATED
WITH THE ITERATIVE TECHNIQUE OF INTEREST ARE ALSO
DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 902 532 19/5 19/4
BOOZ-ALLEN APPLIED RESEARCH INC EGLIN AFB FLA

BURST HEIGHT DISTRIBUTION COMPUTER. VOLUME
1. USER MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT. JAN 71-JAN 72,
JAN 72 37P CUDNEY, DONALD E. ;FRASER,

DAVID O. ;

CONTRACT: F08635-71-C-0093

PROJ: AF-9134

TASK: 913401

MONITOR: AFATL

TR-72-16-VOL-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*BOMBING, *AIRBURST), BOMB TRAJECTORIES,
DISTRIBUTION, DETONATIONS, MATHEMATICAL MODELS,
TRAJECTORIES, TABLES(DATA), BOMB FUZES, MATHEMATICAL
PREDICTION, PLANTS(BOTANY), TREES, COMPUTER PROGRAMS,
PROGRAMMING LANGUAGES, MONTE CARLO METHOD, AZIMUTH,
SAMPLING, PENETRATION, INPUT OUTPUT DEVICES,
PLOTTERS (U)
IDENTIFIERS: FOLIAGE, FORTRAN 4 PROGRAMMING LANGUAGE,
SIZES(DIMENSIONS), TREE BRANCHES (U)

THE BURST HEIGHT DISTRIBUTION (BHD)
PROGRAM DESCRIBED IN THIS REPORT WAS DESIGNED TO
COMPUTE AND DISPLAY BURST HEIGHT DISTRIBUTIONS FOR
MUNITIONS AERIALY DELIVERED INTO FOREST
ENVIRONMENTS. THE PROGRAM USES AS INPUT THE SOURCE
AND TERMINAL X, Y, AND Z COORDINATES AND THE
AVERAGE DIAMETERS OF BRANCHES SURVEYED AT ACTUAL
FORESTED SITES, AND THE MUNITIONS TRAVEL ALONG
STRAIGHT-LINE TRAJECTORIES WHICH ARE RANDOMLY
SELECTED. BURST HEIGHTS ARE COMPUTED FOR THOSE
TRAJECTORIES WHICH ENCOUNTER BRANCHES LARGE ENOUGH TO
DETONATE THE MUNITION, AND AFTER 400 TRAJECTORIES ARE
EXAMINED (100 FROM EACH OF FOUR AZIMUTH ANGLES),
THE CUMULATIVE BURST HEIGHT DISTRIBUTION FOR THE
MUNITION AND ELEVATION ANGLE IS COMPUTED, PRINTED,
AND OPTIONALLY PUNCHED AS OUTPUT. THE COMPUTER
PROGRAM WAS SPECIFICALLY DESIGNED FOR THE CONTROL
DATA CORPORATION 6400 COMPUTER SYSTEM AT EGLIN
AIR FORCE BASE, FLORIDA. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 902 627 19/5 19/4
BOOZ-ALLEN APPLIED RESEARCH INC EGLIN AFB FLA

HURST HEIGHT DISTRIBUTION COMPUTER MODEL.
VOLUME II. ANALYST MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 18 JAN 71-17 JAN 72,
JAN 72 91P CUDNEY, DONALD E. FRASER,

DAVID O. :

CONTRACT: F08635-71-C-0093

PROJ: AF-9134

TASK: 913401

MONITOR: AFATL TR-72-16-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-902
532L

DESCRIPTORS: (BOMBING, AIRBURST), BOMB TRAJECTORIES,
TREES, COMPUTER PROGRAMS, PROGRAMMING LANGUAGES,
MATHEMATICAL MODELS, MONTE CARLO METHOD, MATHEMATICAL
PREDICTION, AZIMUTH, TERMINAL BALLISTICS, DISTRIBUTION,
PENETRATION, FLOW CHARTING, INPUT OUTPUT DEVICES (U)
IDENTIFIERS: FORESTS, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE, HEIGHT OF BURST, TREE BRANCHES (U)

THE HURST HEIGHT DISTRIBUTIONS (BHD)
PROGRAM DESCRIBED IN THIS REPORT WAS DESIGNED TO
COMPUTE AND DISPLAY BURST HEIGHT DISTRIBUTION FOR
MUNITIONS AERIALY DELIVERED INTO FOREST
ENVIRONMENTS. THE PROGRAM USES AS INPUT THE SOURCE
AND TERMINAL X, Y, AND Z COORDINATES AND THE
AVERAGE DIAMETERS OF BRANCHES SURVEYED AT ACTUAL
FORESTED SITES, AND THE MUNITIONS TRAVEL ALONG
STRAIGHT-LINE TRAJECTORIES WHICH ARE RANDOMLY
SELECTED. BURST HEIGHTS ARE COMPUTED FOR THOSE
TRAJECTORIES WHICH ENCOUNTER BRANCHES LARGE ENOUGH TO
DETONATE THE MUNITION, AND AFTER 400 TRAJECTORIES ARE
EXAMINED (100 FROM EACH OF FOUR AZIMUTH ANGLES),
THE CUMULATIVE BURST HEIGHT DISTRIBUTION FOR THE
MUNITION AND ELEVATION ANGLE IS COMPUTED, PRINTED,
AND OPTIONALLY PUNCHED AS OUTPUT. THE COMPUTER
PROGRAM WAS SPECIFICALLY DESIGNED FOR THE CONTROL
DATA CORPORATION 6600 COMPUTER SYSTEM AT EGLIN
AIR FORCE BASE, FLORIDA. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 902 723 15/7 9/2 15/6
NAVAL ORDNANCE LAB WHITE OAK MD

MOESAIC SYSTEM. VOLUME X. THE PROGRAM
LISTING OF THE CDC 6400 VERSION OF MOESAICS
WITH SUPPLEMENTARY NOTES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 72 414P THORN, EVA M. HENNEY, ALAN

G. I

REPT. NO. NOLTR-72-128
PROJ: SF26-553-002

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 9, REPT. NO.
NOLTR-72-127 DATED 31 MAY 72, AD-521 717L AND
VOLUME 1, REPT. NO. USNRDL-TR-68-114 DATED 16 OCT
68, AD-394 839L.

DESCRIPTORS: (*NAVAL OPERATIONS, *COMPUTER PROGRAMS),
(*NUCLEAR WEAPONS, WAR GAMES), MATHEMATICAL MODELS,
INSTRUCTION MANUALS, SIMULATION, COUNTERMEASURES, THREAT
EVALUATION, MISSION PROFILES, NUCLEAR EXPLOSION DAMAGE,
NUCLEAR WARFARE, FLEETS(SHIPS), TARGETS, PROTECTION,
EFFECTIVENESS, DATA PROCESSING, SUBROUTINES (U)
IDENTIFIERS: CDC 6400 COMPUTERS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, MILITARY OPERATIONAL
ENVIRONMENTAL SIMULATION AND IN, MOESAICS(MILITARY
OPERATIONAL ENVIRONMENTAL SIMULATI, *NUCLEAR WEAPONS,
*WEAPONS EFFECTS, TRADEOFFS (U)

THE MILITARY OPERATIONAL-ENVIRONMENTAL
SIMULATION AND INFORMATION COLLATING SYSTEM
(MOESAICS) IS A MODULARIZED, OPEN-ENDED INFORMATION
SYSTEM FOR COLLATING SIGNIFICANT NUCLEAR-WEAPON
EFFECTS WITH TARGETS OF INTEREST TO BOTH NAVAL AND
FLEET MARINE FORCES. THE SYSTEM WAS DEVELOPED AS A
STANDARDIZED TOOL FOR ANALYZING THREAT/MISSION DESIGN
TRADE-OFF STUDIES IN ORDER (1) TO EVALUATE THE
EFFECTIVENESS OF AND DEVELOP RECOMMENDATIONS FOR
IMPROVING WARFARE DOCTRINE AND PROCEDURES; AND
(2) TO EVALUATE THE EFFECTIVENESS OF TARGET
PROTECTION AND COUNTERMEASURE SYSTEMS. THE PRESENT
VOLUME CONTAINS THE COMPLETE PROGRAM LISTING OF THE
CDC 6400 COMPUTER VERSION OF MOESAICS. IT ALSO
CONTAINS A SECTION OF ERRATA SHEETS FOR SEVERAL OF
THE EARLIER DOCUMENTS IN THE SERIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 909 453 15/3 1/3 9/2
STANFORD RESEARCH INST MENLO PARK CALIF

BOMBER PENETRATION AND WEAPON ALLOCATION
MODELS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 9 OCT 70-8 NOV 71,
DEC 71 27P DE SORRINO, R. ;
CONTRACT: DCA100-70-C-0017
PROJ: SRI-8262

UNCLASSIFIED REPORT

DESCRIPTORS: (*ANTIAIRCRAFT DEFENSE SYSTEMS,
PENETRATION), (*JET BOMBERS, ANTIAIRCRAFT DEFENSE
SYSTEMS), (*COMPUTER PROGRAMS, AERIAL WARFARE), JET
FIGHTERS, PROBABILITY DENSITY FUNCTIONS, MATHEMATICAL
MODELS, OPERATIONS RESEARCH, PROGRAMMING LANGUAGES,
FLIGHT PATHS, ACQUISITION RADAR, DETECTION, INTERCEPTION
PROBABILITIES, DISTRIBUTION, DATA PROCESSING, KILL
PROBABILITIES, SURFACE TO AIR MISSILES, ALGORITHMS,
SEARCH RADAR, ELECTRONIC COUNTERMEASURES, DEPLOYMENT (U)
IDENTIFIERS: ALLOCATIONS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, MILITARY FORCE MIXES, SAM D
MISSILES (U)

THE PURPOSE OF THIS STUDY WAS TO DEVELOP TECHNIQUES
SUITABLE FOR INCORPORATION IN AGGREGATED
EFFECTIVENESS EVALUATION MODELS THAT WOULD IMPROVE
THE REPRESENTATION OF AIRBORNE STRATEGIC SYSTEMS.
THIS REPORT SUMMARIZES THE SIGNIFICANT FACETS OF
THE OVER-ALL PROJECT, INCLUDING THE WORK STATEMENT,
REPORTS ISSUED, WORK PERFORMED, OBSERVATIONS AND
CONCLUSIONS, AND RECOMMENDED DIRECTION OF FUTURE
EFFORT. (AUTHOR) (U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 911 399 14/1 9/2 15/3
OGDEN AIR MATERIEL AREA HILL AFB UTAH SERVICE ENGINEERING
DIV

SYSTEM COST RELIABILITY ANALYSIS PROGRAM
(SCRAP) DOCUMENTATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 53P PYTLIK, WILLIAM F. ;
REPT. NO. TR-MMER/RM-73-121
PROJ: MMER/3RHO62

UNCLASSIFIED REPORT

DESCRIPTORS: (*COST EFFECTIVENESS, WEAPON SYSTEMS),
(*COMPUTER PROGRAMS, COST EFFECTIVENESS), (*WEAPON
SYSTEMS, COSTS), AIR FORCE EQUIPMENT, AIR FORCE BUDGETS,
LOGISTICS, AIRCRAFT, TACTICAL WEAPONS, AIRCRAFT
AMMUNITION, OPERATIONAL READINESS, MAINTAINABILITY,
SYSTEMS ENGINEERING, MANAGEMENT PLANNING AND CONTROL,
COMPUTER PROGRAMMING, REAL TIME, TIME SHARING,
PROGRAMMING LANGUAGES, SUBROUTINES, MAINTENANCE,
UNCERTAINTY

(U)

IDENTIFIERS: *COST ANALYSIS, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, SCRAP(SYSTEM COST RELIABILITY
ANALYSIS PROGRAM), SYSTEM COST RELIABILITY ANALYSIS
PROGRAM

(U)

THIS DOCUMENT PRESENTS DOCUMENTATION NECESSARY TO
USE THE SYSTEM COST RELIABILITY ANALYSIS
PROGRAM (SCRAP). THIS PROGRAM, DEVELOPED BY
OQAMA/MMERR, WAS ESTABLISHED TO REALISTICALLY
DETERMINE, IN REAL TIME, THE TOTAL ANNUAL
LOGISTIC COST OF AN AIRCRAFT WEAPON SUBSYSTEM OR
SYSTEM AND TO PERFORM COST SENSITIVITY ANALYSES ON
THESE WEAPON SUBSYSTEMS OR SYSTEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 912 646 9/2 20/4
AIR FORCE ARMAMENT LAB EGLIN AFB FLA

A COMPUTER PROGRAM FOR EXTRACTING
AERODYNAMIC DATA FROM MAGNETIC TAPE. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR-JUN 73,
JUL 73 33P ROGERS, ROBERT M. ;
REPT. NO. AFATL-TR-73-147
PROJ: AF-6700

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, AERODYNAMIC
CHARACTERISTICS), WIND TUNNEL MODELS, TEST FACILITIES,
DATA, DATA PROCESSING, MAGNETIC TAPE, DIGITAL COMPUTERS,
SUBROUTINES, PROGRAMMING LANGUAGES, AUTOMATION, PUNCHED
CARDS, AERODYNAMICS (U)

IDENTIFIERS: CDC 6600 COMPUTERS, *DATA ACQUISITION,
*EXTRACTION, FORTRAN, FORTRAN 4 PROGRAMMING
LANGUAGE (U)

THIS REPORT DESCRIBES A FORTRAN IV COMPUTER
PROGRAM THAT EXTRACTS AERODYNAMIC DATA FROM A
MAGNETIC TAPE PREPARED FROM DATA TAPES SUPPLIED BY
WIND TUNNEL TEST FACILITIES. THE PROGRAM IS
DESIGNED FOR USE ON A CDC 6600 COMPUTER SYSTEM
ALONG WITH AN S-C 4020 COMPUTER RECORDER
(PLOTTER). THE DATA SYSTEMS DEVELOPED BY THE
ARNOLD ENGINEERING DEVELOPMENT CENTER IS USED
AS A MODEL TO DESIGN THE DATA EXTRACTION STATEMENTS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 916 781 20/4 9/2 1/3
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

A THEORETICAL METHOD FOR CALCULATING THE
AERODYNAMIC CHARACTERISTICS OF ARBITRARY JET-
FLAPPED WINGS. VOLUME II. EVD JET-
WING COMPUTER PROGRAM USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. APR 71-APR 72,
MAY 73 125P LOPEZ, MICHAEL L. SHEN,
CHENG-CHUNG SWASSON, NORMAN F. ;
REPT. NO. MDC-J5519-02-VOL-2
CONTRACT: N00014-71-C-0250
PROJ: NR-215-189

UNCLASSIFIED REPORT

DESCRIPTORS: (*WINGS, AERODYNAMIC
CHARACTERISTICS), (*JET FLAPS, WINGS),
(*COMPUTER PROGRAMS, INSTRUCTION MANUALS),
AERODYNAMICS, AERODYNAMIC STABILITY, LIFTING
SURFACES, TRAILING EDGE, LIFT, THEORY, VORTICES,
NUMERICAL ANALYSIS, MATRICES (MATHEMATICS),
SHORT TAKEOFF AIRCRAFT, HIGH LIFT, FLUID DYNAMICS,
PROGRAMMING LANGUAGES, FORTRAN (U)
IDENTIFIERS: ELEMENTARY VORTEX DISTRIBUTION, JET
WING LIFTING SURFACE, THEORY, EVD (ELEMENTARY
VORTEX DISTRIBUTION), KUTTA CONDITION, FINITE
ELEMENT ANALYSIS, FORTRAN 4 PROGRAMMING LANGUAGES (U)

THIS REPORT DESCRIBES THE EVD JET-WING
COMPUTER PROGRAM, WHICH IS BASED UPON THE
ELEMENTARY VORTEX DISTRIBUTION (EVD) JET-
WING LIFTING SURFACE THEORY DESCRIBED IN
VOLUME I OF THIS REPORT. THIS PROGRAM PROVIDES
A CAPABILITY FOR DETERMINING THE AERODYNAMIC
CHARACTERISTICS OF WINGS OF ARBITRARY PLANFORM, AND
INCLUDES THE FOLLOWING: (1) SPANWISE AND
CHORDWISE LOADING; (2) SPANWISE VARIATION OF
INDUCED DRAG; (3) A CAPABILITY TO INVESTIGATE
THE EFFECTS OF: (A) PART SPAN FLAPS, (B)
PART SPAN BLOWING (C) PITCHING, ROLLING,
YAWING, AND SIDESLIP; (4) TOTAL LIFT AND
INDUCED DRAG (MOMENTUM METHOD), PITCHING, YAWING
AND ROLLING MOMENTS, ETC. THE PROGRAM HAS THE
CAPABILITIES FOR INVESTIGATING THE EFFECTS OF A
VARIATION OF LEADING AND TRAILING FLAP DEFLECTION,
CAMBER, TWIST, JET DEFLECTION, AND JET MOMENTUM.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 917 763 19/5 15/7 9/2 19/3
GENERAL ELECTRIC CO PITTSFIELD MASS ORDNANCE SYSTEMS

HITPRO II. VOLUME II. USER'S MANUAL,
RAPID FIRE WEAPON SYSTEM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 158P CUSHMAN, PAUL G. ;
REPT. NO. FDU-71-7-VOL-1
CONTRACT: DAAF03-69-C-0085
PROJ: DA-1-G-530701-D-380
TASK: 1-G-530701-D-38003
MONITOR: SWERR TR-72-17-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-529
310L.

DESCRIPTORS: (*GUNNERY, *ARMORED VEHICLES),
(*KILL PROBABILITIES, AUTOMATIC WEAPONS),
(*COMPUTER PROGRAMS, GUNFIRE), COMPUTERIZED
SIMULATION, INSTRUCTION MANUALS, FLOW CHARTING,
FORTRAN, DIGITAL SIMULATION, SUBROUTINES, FIRE
CONTROL COMPUTERS, MOTION, STABILIZATION SYSTEMS,
RECOIL MECHANISMS, GUNNERS, DRIVES, GUN
DIRECTORS, EQUATIONS OF MOTION, RECOIL MECHANISMS,
FIRE CONTROL SYSTEMS, PROJECTILE TRAJECTORIES,
ANTITANK GUNS, TANKS(OMBAT VEHICLES),
LOGIC

(U)

IDENTIFIERS: HITPRO(HIT PROBABILITY PROGRAM),
*HIT PROBABILITY PROGRAM, FIRE ON THE MOVE,
FORTRAN 4 PROGRAMMING LANGUAGE, MICV(MECHANIZED
INFANTRY COMBAT VEHICLES), MECHANIZED INFANTRY
COMBAT VEHICLES, MICV-65 VEHICLES, M-60A1E2
TANKS, M-60 TANKS, FORTRAN 4

(U)

THE HIT PROBABILITY PROGRAM (HITPRO) IS A
DIGITAL SIMULATION OF AN ARMORED VEHICLE WEAPON
SYSTEM, CONTAINING REPRESENTATION OF VEHICLE AND
TARGET MOTION, VEHICLE BALLISTIC COMPUTER, GUN SERVO
DRIVES, GUN RECOIL, SHELL NOMINAL TRAJECTORY,
DISPERSION DUE TO HIGH-FREQUENCY RESONANCE OF THE GUN
AND NONDYNAMIC CAUSES FROM EXTERNAL ANALYSIS, AND
GUNNER RESPONSE AND DECISION CHARACTERISTICS. THIS
VOLUME IS A USER'S MANUAL FOR THE SIMULATION AND
PRESENTS FLOW CHARTS FOR THE MAIN PROGRAM AND
SUBROUTINES, PLUS LISTINGS OF THE FORTRAN IV
STATEMENTS, AND DETAILED INTERPRETATION OF THE
STATEMENTS, LISTINGS AND DEFINITIONS OF THE
CONSTANTS AND VARIABLES USED IN THE PROGRAM ARE GIVEN
THE TABLE FORM.

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 919 960 14/2 19/4
AIR FORCE ARMAMENT LAB EGLIN AFB FLA

SIMPLIFIED ANALYTIC AND EXPERIMENTAL INTERIOR
BALLISTICS OF LIGHT GAS GUNS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 71-JUN 73,
JAN 74 38P HEINEY, OTTO K. ;
REPT. NO. AFATL-TR-74-32
PROJ: AF-2549
TASK: 254903

UNCLASSIFIED REPORT

DESCRIPTORS: (•LIGHT GAS GUNS, INTERIOR
BALLISTICS), (•INTERIOR BALLISTICS, COMPUTERIZED
SIMULATION), COMPUTER PROGRAMS, INSTRUCTION
MANUALS, HEURISTIC METHODS, ALGORITHMS, FORTRAN,
COMBUSTION CHAMBERS, EXPLOSION GASES, EQUATIONS OF
MOTION, HELIUM, COUPLING(INTERACTION),
NUMERICAL ANALYSIS, MATHEMATICAL PREDICTION,
EQUATIONS OF STATE, FLOW CHARTING, DIGITAL
COMPUTERS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

A TWO-STAGE LIGHT GAS GUN INCREMENTAL INTERIOR
BALLISTIC FORMALISM IS PRESENTED, ALONG WITH A
FORTRAN IV COMPUTER PROGRAM THAT UTILIZES THE
SYSTEM. TYPICAL INPUT AND OUTPUT DATA, BOTH PLOTTED
AND TABULAR, ARE INCLUDED. A STANDARD CONVENTIONAL
GUN BALLISTIC ANALYTIC APPROACH IS COUPLED TO A
MATHEMATICAL MODEL OF THE LIGHT GAS CHAMBER.
CORRELATIONS OF THE MATHEMATICAL MODEL AND COMPUTER
PREDICTIONS TO EXPERIMENTAL DEVICE FIRINGS ARE
DEMONSTRATED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT HIRLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADDD 810 14/4 9/2
NAVAL AVIONICS FACILITY INDIANAPOLIS IND

PREDICTION AND OPTIMIZATION OF FAILURE RATES,
200 SERIES (PROF 200): USERS' MANUAL. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 73 147P LIVERS, PAUL J. ; WILLENBROCK,
JOHN C. ;
REPT. NO. NAFI-TR-1914

UNCLASSIFIED REPORT

DESCRIPTORS: *RELIABILITY, *MATHEMATICAL PREDICTION,
*COMPUTER PROGRAMMING, FAILURE, LIFE TESTS,
MILITARY REQUIREMENTS, FORTRAN, INSTRUCTION
MANUALS (U)

IDENTIFIERS: PROF COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, FAILURE RATE (U)

THIS REPORT IS A 'USER INSTRUCTION MANUAL'
WHICH OUTLINES THE PROCEDURE FOR USING THE
PREDICTION AND OPTIMIZATION OF FAILURE RATES,
200 SERIES (PROF) COMPUTER PROGRAM. INCLUDED
WITH THE NECESSARY INSTRUCTIONS IS A 'SAMPLE'
PREDICTION ON A SYSTEM. THE PROF 200 PROGRAM CAN
BE USED TO PREDICT FAILURE RATE AND RELIABILITY BY A
USER HAVING LITTLE OR NO COMPUTER EXPERIENCE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 850 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME 1 - EXECUTIVE
SUMMARY.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 36P ASCANI, L. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, PART 1, AD/
A-002 852.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS, SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. FIGHTERS, BOMBERS, AND
CARGO AIRCRAFT CAN BE ANALYZED BY THE PROGRAM. THE
PROGRAM OPERATES WITHIN 100,000 OCTAL UNITS ON THE
CONTROL DATA CORPORATION 6600 COMPUTER. TWO
STAND-ALONE PROGRAMS OPERATING WITHIN 100,000 OCTAL
UNITS WERE ALSO DEVELOPED TO PROVIDE OPTIONAL DATA
SOURCES FOR SWEEP. THESE INCLUDE THE FLEXIBLE
AIRLOADS PROGRAM TO ASSESS THE EFFECTS OF FLEXIBILITY
ON LIFTING SURFACE AIRLOADS, AND THE FLUTTER
OPTIMIZATION PROGRAM TO OPTIMIZE THE STIFFNESS
DISTRIBUTION REQUIRED FOR LIFTING SURFACE FLUTTER
PREVENTION. THIS VOLUME, VOLUME 1, SUMMARIZES
THE PROGRAM AND ITS CAPABILITIES.

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 851 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME II - PROGRAM
INTEGRATION AND DATA MANAGEMENT MODULE.
APPENDIX A: DATA MANAGEMENT MODULE FLOW
CHARTS AND FORTRAN LISTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 329P HAYASE, G. ; HIRAHARA, R. ;
MARTINDALE, C. ; ROCKWELL, H. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-2-APP-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, PART 2, AD/
A-002 853 AND VOLUME 3, AD/A-002 854.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *SUBROUTINES, FLUTTER, STIFFNESS,
AERODYNAMIC LOADING, AIRFRAMES, DATA MANAGEMENT,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 2)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE SWEEP CONTROL PROGRAM,
INPUT DATA PROCESSING MODULE, FINAL OUTPUT MODULE,
AND THE DATA MANAGEMENT MODULE.

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 852 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME II - PROGRAM
INTEGRATION AND DATA MANAGEMENT MODULE.
PART 1: PROGRAM INTEGRATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 225P HAYASE, G. ; HIYAMA, R. ;
MARTINDALE, C. ; ROCKWELL, H. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-2-PT-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD/A-002 850
AND VOLUME 2, PART 1, AD/A-002 853.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES, DATA
MANAGEMENT, LIFTING SURFACES, FORTRAN,
OPTIMIZATION, USER NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 2)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE SWEEP CONTROL PROGRAM,
INPUT DATA PROCESSING MODULE, FINAL OUTPUT MODULE,
AND THE DATA MANAGEMENT MODULE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD-A002 853 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME II - PROGRAM
INTEGRATION AND DATA MANAGEMENT MODULE.
PART 2: DATA MANAGEMENT MODULE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 285P HAYASE, G. ; HIYAMA, R. ;
MARTINDALE, C. ; ROCKWELL, H. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-2-PT-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, PART 1, AD/
A-002 852 AND VOLUME 2, APPENDIX A, AD/A-002
851.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THE FINAL REPORT IS
COMPOSED OF 11 VOLUMES. THIS VOLUME (VOLUME 2)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE SWEEP CONTROL PROGRAM,
INPUT DATA PROCESSING MODULE, FINAL OUTPUT MODULE,
AND THE DATA MANAGEMENT MODULE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 854 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME III -
AIRLOADS ESTIMATION MODULE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 280P WILDERMUTH, P. ; ROTHAMMER, G.
; HIYAMA, R. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, APPENDIX A,
AD/A-002 851 AND VOLUME 3, APPENDIX A AND
APPENDIX B, AD/A-002 855.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 3)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE AIRLOAD MODULE OF
SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 855 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME III - AIRLOADS
ESTIMATION MODULE. APPENDIX A: MODULE
FLOW CHARTS AND FORTRAN LISTS. APPENDIX
B: SAMPLE OUTPUT.

(U)

DESCRIPTIVE NOTE: TECHNICAL KEPT.,
JUN 74 190P WILDERMUTH, P.; IROTHAMMER, G.
; HIYAMA, R. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-3-APP-A/B

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, AD/A-002 854
AND VOLUME 4, AD/A-002 856.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 3)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE AIRLOAD MODULE OF
SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 856 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME IV - MATERIAL
PROPERTIES, STRUCTURE TEMPERATURE, FLUTTER
AND FATIGUE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 40RP HAROLDSON, H. ; HODSON, C. ;
MELLIN, S. ; ROCKWELL, H. ; TEJANI, S. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 3, APPENDIX A
AND APPENDIX B, AD/A-002 855 AND VOLUME 5, PART
1, AD/A-002 857.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS,
MATERIALS PROPERTIES

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 4)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE USE OF MATERIAL
PROPERTIES, FLUTTER AND TEMPERATURE MODULE, AND
FATIGUE MODULE OF SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 857 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME V - AIR
INDUCTION SYSTEM AND LANDING GEAR MODULES.
PART 1: AIR INDUCTION SYSTEM MODULE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 471P CHALOFF, D. ; HIYAMA, R. ;
MARTINDALE, C. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-5-PT-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 4, AD/A-002 856
AND VOLUME 5, PART 2, AD/A-002 858.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIR INTAKES,
LANDING GEAR, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE FINAL REPORT IS
COMPOSED OF 11 VOLUMES. THIS VOLUME (VOLUME 5)
CONTAINS THE METHODOLOGY PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE AIR INDUCTION SYSTEM AND
LANDING GEAR MODULES OF SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 958 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME V - AIR
INDUCTION SYSTEM AND LANDING GEAR MODULES.
PART 2: LANDING GEAR MODULE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 180P CHALOFF, D. IHIYAMA, R. ;
MARTINDALE, C. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-5-PT-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, PART 1, AD/
A-002 857 AND VOLUME 6, BOOK 1, AD/A-002 864.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, LANDING GEAR,
FORTRAN, OPTIMIZATION, USER NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 5)
CONTAINS THE METHODOLOGY PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE AIR INDUCTION SYSTEM AND
LANDING GEAR MODULES OF SWEEP.

(U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 859 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. APPENDIX A: GENERAL
INFORMATION FOR MODULE FLOW CHARTS AND
LISTINGS. APPENDIX B: PROGRAM FLOW
CHARTS, OVERLAYS (18,0), (14,0), (15,
0), (16,0) AND (17,0).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 472P HAYASE, G. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: 450/XR 74-10-VOL-6-APP-A/B

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, BOOK 3, AD/
A-002 866 AND VOLUME 6, APPENDIX C. AD/A-002
860.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION
IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 860 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. APPENDIX C: PROGRAM
FLOW CHARTS, OVERLAYS (9.0) AND (10.
0).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 349P HAYASE, G. I
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-APP-C

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, APPENDIX A
AND APPENDIX B, AD/A-002 859 AND VOLUME 6,
APPENDIX D, AD/A-002 861.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, FLOW
CHARTING

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 861 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. APPENDIX D: PROGRAM
FLOW CHARTS, OVERLAY (18,0).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 233P HAYASE, G. I
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-APP-D

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, APPENDIX C,
AD/A-002 860 AND VOLUME 6, APPENDIX E. AD/A-
002 862.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION
IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. FIGHTERS, BOMBERS, AND
CARGO AIRCRAFT CAN BE ANALYZED BY THE PROGRAM. THE
FINAL REPORT IS COMPOSED OF 11 VOLUMES. THIS
VOLUME (VOLUME VI) CONTAINS THE METHODS AND
PROGRAM DESCRIPTION FOR THE WING AND EMPENNAGE MODULE
OF SWEEP. PROGRAM LISTINGS AND FLOW CHARTS ARE
INCLUDED IN THE APPENDIX TO THIS VOLUME.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 862 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. APPENDIX E: PROGRAM
LISTINGS, OVERLAYS (8,0), (14,0), (15,
0), (16,0), AND (17,0).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 248P HAYASE, G. ;
CONTRACT: F33615-72-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-APP-E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, APPENDIX D,
AD/A-002 861 AND VOLUME 6, APPENDIX F, AD/A-
002 863.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMS, FLUTTER, STIFFNESS,
AERODYNAMIC LOADING, AIRFRAMES, LIFTING SURFACES,
FORTRAN, OPTIMIZATION

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 863 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. APPENDIX F: PROGRAM
LISTINGS, OVERLAYS (9,0), (10,0) AND
(1A,0).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 261P HAYASE, G. I
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-APP-F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, APPENDIX E,
AD/A-002 862 AND VOLUME 7, AD/A-002 867.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMS, FLUTTER, STIFFNESS,
AERODYNAMIC LOADING, AIRFRAMES, LIFTING SURFACES,
FORTRAN, OPTIMIZATION

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

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UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 864 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. BOOK 1: TECHNICAL
DISCUSSION SECTIONS I AND II.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 389P HAYASE, G. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-BK-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, PART 2, AD/
A-002 858 AND VOLUME 6, AD/A-002 865.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

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UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 865 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. BOOK 2: TECHNICAL
DISCUSSION, SECTIONS III AND IV.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 354P HAYASE, G. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-BK-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, BOOK 1, AD/
A-002 864 AND VOLUME 6, BOOK 3, AD/A-002 866.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOAD SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 866 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VI - WING AND
EMPENNAGE MODULE. BOOK 3: TECHNICAL
DISCUSSION, SECTION V. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 360P HAYASE, G. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-6-BK-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, BOOK 2, AD/
A-002 865 AND VOLUME 6, APPENDIX A AND APPENDIX
B, AD/A-002 859.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION (U)
IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS (U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THIS VOLUME (VOLUME 6)
CONTAINS THE METHODS AND PROGRAM DESCRIPTION FOR THE
WING AND EMPENNAGE MODULE OF SWEEP. PROGRAM
LISTINGS AND FLOW CHARTS ARE INCLUDED IN THE APPENDIX
TO THIS VOLUME. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 867 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME VII -
FUSELAGE MODULE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 438P HIYAMA, R. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, APPENDIX F,
AD/A-002 863 AND VOLUME 7, APPENDIX A AND
APPENDIX B, AD/A-002 868.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, FUSELAGES,
FORTRAN, OPTIMIZATION, USER NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 7)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE FUSELAGE MODULE OF
SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZON09

AD-A002 868 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIR CRAFT. VOLUME VII -
FUSELAGE MODULE. APPENDIX A: MODULE FLOW
CHARTS AND FORTRAN LISTS. APPENDIX B:
FUSELAGE MODULE SAMPLE OUTPUT.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 449P HIYAMA, R. I
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-7-APP-A/B

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 7, AD/A-002 867
AND VOLUME 8, AD/A-002 869.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMS, FLUTTER, STIFFNESS,
AERODYNAMIC LOADING, FUSELAGES, FORTRAN,
OPTIMIZATION, USER NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 7)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE FUSELAGE MODULE OF
SWEEP.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 869 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME III -
PROGRAMMER'S MANUAL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 82P MARTINDALE, C. ; ROCKWELL, H. ;
HAYASE, G. ; HIYAMA, R. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-8

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 7, APPENDIX A
AND APPENDIX B. AD/A-002 868 AND VOLUME 9, AD/
A-002 870.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 8)
DESCRIBES THE PROGRAM STRUCTURE AND OPERATION. IT
PROVIDES A COMPUTER PROGRAMMER WITH INFORMATION FOR
MODIFYING OR DEBUGGING THE PROGRAM. IT IS WRITTEN
TO BE USED IN CONJUNCTION WITH VOLUMES II THROUGH
VII, WHICH DESCRIBE THE METHODS AND FORMULATIONS,
PROGRAM DESCRIPTIONS, DETAIL CORE MAPS, AUTOFLOW
CHARTS, AND PROGRAM LISTINGS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 870 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME IX - USER'S
MANUAL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 373P ALLEN, R. ; CHALOFF, D. ;
HAYASHI, G. ; HIYAMA, R. ; MARTINDALE, C. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 8, AD/A-002 869
AND VOLUME 9, APPENDIX A, AD/A-002 871.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 9)
CONTAINS THE INSTRUCTIONS AND INPUT DESCRIPTIONS FOR
USE OF THE INTEGRATED SWEEP PROGRAM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 871 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME IX - USER'S
MANUAL. APPENDIX A.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 299P ALLEN, R. ; CHALOFF, D. ;
HAYASE, G. ; HIYAMA, R. ; MARTINDALE, C. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-9-APP-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 9, AD/A-002 870
AND VOLUME 10, AD/A-002 872

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*WEIGHT, *COMPUTER PROGRAMMING, FLUTTER,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, JET
TRANSPORT PLANES

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS, C-141
AIRCRAFT, C-141A AIRCRAFT

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZE G, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 9)
CONTAINS THE INSTRUCTIONS AND INPUT DESCRIPTIONS FOR
USE OF THE INTEGRATED SWEEP PROGRAM.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 872 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME X - FLUTTER
OPTIMIZATION STAND-ALONE PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 272P SIEGEL, S. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 9, APPENDIX A,
AD/A-002 871 AND VOLUME 11, AD/A-002 873.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*FLUTTER, *COMPUTER PROGRAMMING, WEIGHT,
STIFFNESS, AERODYNAMIC LOADING, AIRFRAMES,
LIFTING SURFACES, FORTRAN, OPTIMIZATION, USER
NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 10)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE FLUTTER OPTIMIZATION
STAND-ALONE PROGRAM.

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 873 1/3 9/2
ROCKWELL INTERNATIONAL CORP LOS ANGELES CALIF LOS ANGELES
AIRCRAFT DIV

A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME XI - FLEXIBLE
AIRLOADS STAND-ALONE PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 275P WILDERMUTH, P. ; ROTHAMMER, G.
; RYAN, T. ;
CONTRACT: F33615-71-C-1922
PROJ: AF-C093
MONITOR: ASD/XR 74-10-VOL-11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 10, AD/A-002
872.

DESCRIPTORS: *AIRCRAFT, *STRUCTURAL MEMBERS,
*LOADS(FORCES), *COMPUTER PROGRAMMING,
FLUTTER, STIFFNESS, AERODYNAMIC LOADING,
AIRFRAMES, LIFTING SURFACES, FORTRAN,
OPTIMIZATION, USER NEEDS

(U)

IDENTIFIERS: SWEEP COMPUTER PROGRAM, STRUCTURAL
SYNTHESIS, ENGINEERING DESIGN, FORTRAN 4
PROGRAMMING LANGUAGE, CDC 6600 COMPUTERS

(U)

THREE COMPUTER PROGRAMS WERE WRITTEN WITH THE
OBJECTIVE OF PREDICTING THE STRUCTURAL WEIGHT OF
AIRCRAFT THROUGH ANALYTICAL METHODS. THE FIRST
PROGRAM, THE STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP), IS A COMPLETELY INTEGRATED PROGRAM
INCLUDING ROUTINES FOR AIRLOADS, LOADS SPECTRA, SKIN
TEMPERATURES, MATERIAL PROPERTIES, FLUTTER STIFFNESS
REQUIREMENTS, FATIGUE LIFE, STRUCTURAL SIZING, AND
FOR WEIGHT ESTIMATION OF EACH OF THE MAJOR AIRCRAFT
STRUCTURAL COMPONENTS. THE PROGRAM PRODUCES FIRST-
ORDER WEIGHT ESTIMATES AND INDICATES TRENDS WHEN
PARAMETERS ARE VARIED. THIS VOLUME (VOLUME 11)
CONTAINS THE METHODOLOGY, PROGRAM DESCRIPTION, AND
USER'S INFORMATION FOR THE FLEXIBLE LOADS STAND-ALONE
PROGRAM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A003 009 13/10.1 20/4
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF OCEAN
ENGINEERING

UNSTEADY HYDRODYNAMICS OF A BODY OF
REVOLUTION WITH FAIRWATER AND RUDDER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 71-MAR 74,
MAR 74 130P GLASSON, DOUGLAS P. ;
REPT. NO. 74-7
CONTRACT: N00014-67-A-0204-0058
PROJ: SR009-01, MIT-DSR-73636
TASK: SR009-01-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SUBMARINE HULLS, *HYDRODYNAMICS,
SUBMARINES, LIFTING SURFACES, VORTICES,
HYDRODYNAMIC CONTROL SURFACES, WAKE, INTERACTIONS,
COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

POTENTIAL FLOW MODELS ARE DEVELOPED FOR A SUBMERGED
BODY OF REVOLUTION WITH FIN AND RUDDER APPENDAGES.
FORCES AND MOMENTS ON THE LIFTING SURFACES AND HULL
HAVE BEEN PREDICTED AT A STEADY ANGLE OF ATTACK.
THE PROCEDURE IS EXTENDED TO THE TIME DEPENDENT
ANGLE OF ATTACK CASE. EXPERIMENTAL, ANALYTICAL AND
NUMERICAL APPROACHES ARE DESCRIBED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A003 176 19/4 9/2
BALLISTIC RESEARCH LABS ARDEN PROVING GROUND MD

A USER'S MANUAL FOR THE REPSIL CODE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 74 204P SANTIAGO, J. M. IWISNIEWSKI,
H. L. HUFFINGTON, N. J. , JR;
REPT. NO. ARL-1744
PROJ: RDT/E-1-W-162118-AD-51, RDT/E-1-T-
161102-A-33-E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *BLAST LOADS, *COMPUTER PROGRAMS,
SHELLS(STRUCTURAL FORMS), DEFORMATION, FINITE
DIFFERENCE THEORY, COMPUTATIONS, COMPUTER
PROGRAMMING, FORTRAN (U)
IDENTIFIERS: REPSIL COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE (U)

REPSIL IS A FINITE DIFFERENCE COMPUTER PROGRAM WHICH CALCULATES THE LARGE DEFLECTION, TRANSIENT MOTION OF THIN KIRCHHOFF SHELLS. THE PROGRAM MARCHES OUT THE SOLUTION BY CYCLICALLY SOLVING AN EXPLICIT, CENTERED TIME DIFFERENCE FORMULA FOR DISPLACEMENTS. THE FORMULATION HANDLES ELASTIC-PLASTIC BEHAVIOR, INCLUDING STRAIN HARDENING AND STRAIN RATE EFFECTS, AND PERMITS THE MODELING OF A VARIETY OF INITIAL SHELL CONFIGURATIONS AND IMPULSIVE/PRESSURE LOADINGS. THE MANUAL GIVES INSTRUCTIONS FOR CORRECTLY SETTING UP PROBLEMS AND ESTIMATING MACHINE TIME AND STORAGE REQUIREMENTS. TWO ILLUSTRATIVE PROBLEMS ARE SET UP AND THE RESULTING SOLUTIONS GIVEN. THE NUMERICAL ALGORITHM EMPLOYED BY REPSIL IS OUTLINED AND INSTRUCTIONS FOR PROGRAMMING ADDITIONAL INITIAL GEOMETRIES AND LOADINGS ARE GIVEN. THE REPSIL PLOTTING PROGRAM, WHICH PRODUCES ISOMETRIC AND CROSS-SECTIONAL DISPLAYS AND TIME HISTORIES OF ENERGIES, DEFLECTIONS AND STRAINS, IS ALSO DESCRIBED. LISTINGS OF BOTH THE REPSIL PROGRAM AND THE REPSIL PLOTTING PROGRAM ARE INCLUDED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADD3 471 1/3 13/4 19/4 9/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

AIRCRAFT FUEL TANK VULNERABILITY TO
HYDRAULIC RAM; MODIFICATION OF THE
NORTHROP FINITE ELEMENT COMPUTER CODE BR-
1 TO INCLUDE FLUID-STRUCTURE INTERACTION--
THEORY AND USER'S MANUAL FOR BR-1HR.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 73-30 JUN 1974,
JUL 74 35P BALL, R. E. ;
REPT. NO. NPS-57RP74071

UNCLASSIFIED REPORT

DESCRIPTORS: *JET AIRCRAFT, *FUEL TANKS, *GUNFIRE,
*BALLISTICS, PROJECTILES, PENETRATION, COMPUTER
PROGRAMMING, USER NEEDS, FORTRAN

(U)

IDENTIFIERS: FINITE ELEMENT ANALYSIS, FORTRAN 4
PROGRAMMING LANGUAGE, HYDRAULIC RAM, BR-1 COMPUTER
CODE, IBM 360/67 COMPUTERS

(U)

THE FINITE ELEMENT DIGITAL COMPUTER CODE BR-1,
DEVELOPED BY THE NORTHROP CORPORATION, FOR
PREDICTING THE EFFECTS OF INTERNAL AIR BLAST ON
COMBAT AIRCRAFT STRUCTURES IS MODIFIED TO INCLUDE THE
EFFECTS OF COMPRESSIBLE FLUID-STRUCTURE INTERACTION.
THE TRUE INTERACTION PHENOMENON IS APPROXIMATED BY
THE PISTON THEORY. THE MODIFICATION ENABLES THE
CODE TO BE USED TO PREDICT THE STRUCTURAL RESPONSE OF
AIRCRAFT FUEL TANKS SUBJECTED TO PENETRATING BULLETS
AND FRAGMENTS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD-A003 925 16/2
NIELSEN ENGINEERING AND RESEARCH INC MOUNTAIN VIEW
CALIF

SUPERSONIC LIFTING-SURFACE COMPUTER PROGRAM
FOR CRUCIFORM WING-BODY COMBINATIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 OCT 73-30 SEP 74,
DEC 74 13RP DILLENIOUS, MARNIX F. E. ;
NIELSEN, JACK N. ;
REPT. NO. NEAR-TR-74
CONTRACT: N00014-74-C-0050
PROJ: NR-215-226

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *WING BODY CONFIGURATIONS, *LIFTING
SURFACES, *SUPERSONIC CHARACTERISTICS, POTENTIAL
FLOW, CRUCIFORM WINGS, GUIDED MISSILES, SUPERSONIC
FLOW, ANGLE OF ATTACK, COMPUTER PROGRAMS,
FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

A LIFTING-SURFACE COMPUTER PROGRAM HAS BEEN WRITTEN
FOR SUPERSONIC CRUCIFORM WING-BODY COMBINATIONS AT
COMBINED PITCH AND YAW CONDITIONS. THE METHOD
INVOLVES SUPERSONIC LINE SOURCES AND DOUBLET'S TO
MODEL THE BODY AND USES WOODWARD'S CONSTANT
PRESSURE PANELS TO REPRESENT THE WING. SUCH PANELS
ARE ALSO PLACED ON THE BODY SURFACE TO ACCOUNT FOR
WING-BODY INTERFERENCE. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADD3 951 8/7
NORTHWESTERN UNIV EVANSTON ILL DEPT OF GEOLOGICAL
SCIENCES

APPLICATION OF REGRESSION MODELS TO MULTI-
FAULTED SUBSURFACE GEOLOGIC STRUCTURES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 74 113P ATOM, KODJOPA ;
REPT. NO. TR-1
CONTRACT: DA-ARO-D-31-124-72-G54
MONITOR: ARO 9894.9-EN

UNCLASSIFIED REPORT

DESCRIPTORS: *FAULTS(GEOLOGY), *STRUCTURAL
GEOLOGY, REGRESSION ANALYSIS, ALGORITHMS,
MATHEMATICAL MODELS, COMPUTER PROGRAMS,
DISPLACEMENT, DETECTION, COMPUTATIONS, KANSAS,
CALIFORNIA, FORTRAN
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THE PRE-FAULT GEOMETRY OF MULTI-FAULTED SUBSURFACE
GEOLOGICAL STRUCTURES WAS RECONSTRUCTED USING
REGRESSION-ANALYSIS METHODS. REGRESSION-ANALYSIS
MODELS WERE DEVELOPED FOR FAULTS WITH VERTICAL
DISPLACEMENT, WITH HORIZONTAL DISPLACEMENT, AND WITH
BOTH VERTICAL AND HORIZONTAL-DISPLACEMENT COMPONENTS.
EXCEPT FOR VERTICAL-DISPLACEMENT FAULTS, THE MODELS
ARE NON-LINEAR. SUBSTANTIVE ALGORITHMS, BASED ON
THE STRUCTURAL EFFECTS OF FAULTING, ARE PROPOSED AND
USED TO DERIVE APPROXIMATE NUMERICAL SOLUTIONS TO THE
REGRESSION EQUATIONS. THE PROCEDURE IS TESTED WITH
HYPOTHETICAL FAULTED STRUCTURES, VERTICAL FAULTS IN
THE SUBSURFACE ARBUCKLE FORMATION (KANSAS),
AND TRANSCURRENT FAULTS IN SELECTED OIL FIELDS OF
SOUTHERN CALIFORNIA. A METHOD BASED ON THE
DISTRIBUTION OF LARGE RESIDUALS FROM A COMPUTED
SURFACE IS PROPOSED FOR DETECTING UNMAPPED SUBSURFACE
FAULTS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOH09

AD-A005 086 20/6
MADRID UNIV (SPAIN) FACULTAD DE CIENCIAS

OPTICAL CONSTANTS OF SiO IN THE IR
REGION.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN-31 DEC
73.

JUL 74 118P ESCOLAR, D. MORCILLO, J. ;
CONTRACT: DAJA37-73-C-0468
PROJ: DA-2-D-061102-B-11-B
TASK: TASK 2-D-061102-B-11-B-00

UNCLASSIFIED REPORT

DESCRIPTORS: *INFRARED SPECTRA, REFLECTANCE, THIN
FILMS, VAPOR DEPOSITION, COMPUTER PROGRAMS,
OPTICAL COATINGS, SILICON COMPOUNDS, MONOXIDES,
FORTRAN, SPAIN

(U)

IDENTIFIERS: *SILICON MONOXIDE, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

VALUES OF THE OPTICAL CONSTANTS, N AND K (N BAR *
N - I K), OF VACUUM DEPOSITED THIN FILMS OF SILICON
MONOXIDE OVER THE RANGE 1.0 TO 50.0 MICRONS, OBTAINED
FROM ATTENUATED TOTAL REFLECTANCE (ATR) ARE
COMPUTED WITH A SIMPLE RIGOROUS METHOD. THE ATR
ELEMENT USED IS A COMMERCIAL ONE. A ANALYSIS IS
ALSO PRESENTED OF THE CALCULATION OF N AND K FROM
TRANSMISSION MEASUREMENTS SHOWING CONSISTENCY WITH
ATR MEASUREMENTS FOR A LIQUID SAMPLE. A DOUBLE
BEAM ATR SYSTEM IS DESCRIBED FOR MAKING PRECISE
MEASUREMENTS AT A VARIABLE ANGLE OF INCIDENCE OF THE
REFLECTIVITY USING ONLY ONE HEMICYLINDRICAL
REFLECTANCE ELEMENT. THE CELL HAS TWO COMPARTMENTS
FOR SAMPLE AND REFERENCE BEAM RESPECTIVELY. THE
BEAM HAS A WEDGE SHAPE WITH THE FOCAL LINE PARALLEL
TO THE CYLINDER AXIS AND THE OPTICAL ELEMENTS ARE ALL
STANDARD MIRRORS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A005 644 12/1
WYOMING UNIV LARAMIE STATISTICS LAB

CONFIDENCE INTERVALS FOR THE DIFFERENCE OF
TWO PROPORTIONS: SMALL SAMPLE SIZES.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 74 126P MCDONALD, LYMAN L. ;
NEUBAUER, KENNETH D. IMEISTER, KEREN A. ;
REPT. NO. 2009, RP-44
CONTRACT: N00014-70-A-0266-0010
PROJ: NR-042-310

UNCLASSIFIED REPORT

DESCRIPTORS: *SAMPLING, *CONFIDENCE LIMITS,
DISTRIBUTION FUNCTIONS, COMPUTER PROGRAMS, FORTRAN,
TABLES(DATA)

(U)

IDENTIFIERS: CONFIDENCE LEVEL, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

CONFIDENCE INTERVALS, WITH CONFIDENCE LEVELS 90 OR
95 AND 99 PERCENT ARE TABULATED FOR THE
DIFFERENCE OF TWO PROPORTIONS UNDER INDEPENDENT
BINOMIAL SAMPLING. ALL POSSIBLE SAMPLE SIZES UP TO
AND INCLUDING 12 ARE CONSIDERED, AS WELL AS SELECTED
CASES FOR SAMPLE SIZES FROM 13 TO 15. THE LISTING
OF A FORTRAN 4 COMPUTER PROGRAM IS GIVEN WHICH WILL
GENERATE CONFIDENCE INTERVALS FOR OTHER CASES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AN06 253 8/10 8/14 9/2
NAVAL RESEARCH LAB WASHINGTON D C

A PROGRAM TO PLOT BATHYMETRIC AND MAGNETIC
ANOMALY PROFILES.

(U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
JAN 75 38P BLODGETT, MARILYN L. ;
LALUMIERE, LEON ;
REPT. NO. NRL-MR-2985
PROJ: S01-37, XF52-552

UNCLASSIFIED REPORT

DESCRIPTORS: *BATHYMETRY, *MAGNETIC ANOMALIES,
*DATA PROCESSING, COMPUTER PROGRAMS, PLOTTERS,
FORTRAN

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
3800 COMPUTERS, *MERCATOR PROJECTION, PROFILE
COMPUTER PROGRAM

(U)

A PROGRAM HAS BEEN WRITTEN FOR PLOTTING BATHYMETRIC
AND MAGNETIC ANOMALY PROFILES USING A MERCATOR
PROJECTION FOR SCALING. THIS FEATURE ALLOWS THE
USER TO OVERLAY THE PROFILES ON A MERCATOR CHART.
OPTIONS INCLUDE THE SCALING FACTOR, VERTICAL
EXAGGERATION OF THE PROFILES, AND TYPE OF HORIZONTAL
AXIS (LATITUDE OR LONGITUDE). THE PROGRAM WAS
WRITTEN IN FORTRAN IV FOR USE ON THE CDC 3800;
HOWEVER, THE PROGRAM CAN BE CONVERTED TO RUN ON OTHER
SYSTEMS WITH LITTLE DIFFICULTY.

(U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A006 362 8/5
OHIO STATE UNIV COLUMBUS DEPT OF GEODETIC SCIENCE

A FORTRAN IV PROGRAM FOR THE DETERMINATION
OF THE ANOMALOUS POTENTIAL USING STEPWISE
LEAST SQUARES COLLOCATION. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
JUL 74 130P TSCHERNING, C. C. ;
REPT. NO. DGS-212, SCIENTIFIC-17
CONTRACT: F19628-72-C-0120
PROJ: AF-8607
TASK: 860701
MONITOR: AFCRL TR-74-0391

UNCLASSIFIED REPORT

DESCRIPTORS: *GEODESY, *GRAVITY, LEAST SQUARES
METHOD, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: COLLOCATION METHOD, FORTRAN 4
PROGRAMMING LANGUAGE, *GEOPOTENTIAL, *GRAVIMETRIC
GEODESY, SPHERICAL HARMONICS (U)

THE THEORY OF SEQUENTIAL LEAST SQUARES COLLOCATION,
AS APPLIED TO THE DETERMINATION OF AN APPROXIMATION
(T AVF) TO THE ANOMALOUS POTENTIAL OF THE EARTH
T, AND TO THE PREDICTION AND FILTERING OF
QUANTITIES RELATED IN A LINEAR MANNER TO T, IS
DEVELOPED. THE PRACTICAL IMPLEMENTATION OF THE
THEORY IN THE FORM OF A FORTRAN 4 PROGRAM IS
PRESENTED AND DETAILED INSTRUCTIONS FOR THE USE OF
THIS PROGRAM ARE GIVEN. THE PROGRAM REQUIRES THE
SPECIFICATIONS OF (1) A COVARIANCE FUNCTION OF
THE GRAVITY ANOMALIES AND (2) A SET OF OBSERVED
QUANTITIES WITH KNOWN STANDARD DEVIATIONS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A006 600 20/4
MOUNT AUBURN RESEARCH ASSOCIATES INC NEWTON UPPER FALLS
MASS

A NUMERICAL MODEL OF DROPLET ENTRAINMENT FROM
A CONTAINED OIL SLICK. (U)

DESCRIPTIVE NOTE: FINAL REPT.:
SEP 74 83P ZALOSH, ROBERT G. ;
CONTRACT: DOT-CG-41822-A
MONITOR: USCG D-65-75

UNCLASSIFIED REPORT

DESCRIPTORS: *DROPS, *ENTRAINMENT, WATER FLOW,
RATES, OIL SPILLS, MATHEMATICAL MODELS, (U)
VORTICES, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: *OIL SLICKS, FORTRAN 4 PROGRAMMING (U)
LANGUAGE, OIL POLLUTION CONTAINMENT

A THEORETICAL ANALYSIS OF OIL DROPLET ENTRAINMENT FROM A CONTAINED OIL SLICK MOVING RELATIVE TO WATER HAS BEEN PERFORMED AS A FUNCTION OF RELATIVE OIL-WATER VELOCITY. A NUMERICAL METHOD INCORPORATING DISCRETE VORTICES IS USED TO CALCULATE SMOOTH STABLE HEADWAVE PROFILES AT LOW VELOCITIES AND UNSTABLE PROFILES AT HIGH VELOCITIES. AN OIL DROPLET FORMATION CRITERION IS FORMULATED AND APPLIED TO THE NUMERICALLY MODELED HEADWAVE REGION. THE COMPUTED CRITICAL VELOCITY CORRESPONDING TO THE ONSET OF SIGNIFICANT DROPLET ENTRAINMENT IS IN CLOSE AGREEMENT WITH RECENT LABORATORY MEASUREMENTS. THE COMPUTED ENTRAINMENT RATES ARE IN APPROXIMATE AGREEMENT WITH EXPERIMENT, BUT DO NOT EXHIBIT SYSTEMATIC VARIATION WITH WATER CURRENT. OIL DROP TRAJECTORIES ARE CALCULATED USING REALISTIC STARTING CONDITIONS, BUT THE PRESENT WORK DOES NOT EXTEND BEYOND THE FIRST INTERSECTION OF THE DROP WITH THE SLICK. RECOMMENDATIONS ARE GIVEN FOR EXTENDING THE WORK TO INCLUDE: POST-FORMATION DROPLET DYNAMICS, WAVE EFFECTS, TURBULENCE EFFECTS, AND BARRIER DESIGN CHANGES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADD7 148 12/2
STANFORD UNIV CALIF SYSTEMS OPTIMIZATION LAB

SOME EXPERIMENTS ON THE ACCURACY OF THREE
METHODS OF UPDATING THE INVERSE IN THE
SIMPLEX METHOD.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 74 31P MCCOY, P. F. TOMLIN, J.

A. I.

REPT. NO. SOL-74-21
CONTRACT: N00014-67-A-0112-0011; DAHCO4-74-C-0034
PROJ: NR-047-064
MONITOR: ARD 12215.5-M

UNCLASSIFIED REPORT

DESCRIPTORS: *SIMPLEX METHOD, LINEAR PROGRAMMING,
ALGORITHMS, FORTRAN

(U)

IDENTIFIERS: *INVERSE PROBLEMS, IBM 360/91
COMPUTERS, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS NOTE REPORTS THE RESULTS OF SOME EXPERIMENTS
ON MEASURING THE ACCURACY OF A GROUP OF METHODS FOR
UPDATING THE INVERSE IN THE SIMPLEX METHOD. THESE
METHODS ARE THE STANDARD PRODUCT FORM, THE BARTELS-
GOLUB METHOD AND THE FORREST-TOMLIN UPDATE.
THEN EXPERIMENTS, CARRIED OUT ON SMALL TO MEDIUM
SIZE MODELS, WERE SOMEWHAT DISTURBING IN THAT NO
METHOD SHOWED CONSISTENT SUPERIORITY, AND IN THAT THE
ERROR MEASUREMENTS THAT WERE USED SHOWED VERY ERRATIC
BEHAVIOR.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A007 550 12/1 9/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

OPTIMAL SYNTHESIS PROGRAM FOR AUTOMATIC
CONTROL (OSPAC).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 19 MAR 74-FEB 75,
FER 75 59P HESS, RONALD A. ; STURGES,

JAMES W. I
REPT. NO. NPS-57HE75021

UNCLASSIFIED REPORT

DESCRIPTORS: *CONTROL THEORY, *COMPUTER PROGRAMS,
MATRICES (MATHEMATICS), STOCHASTIC PROCESSES,
KALMAN FILTERING, HELICOPTERS, FLIGHT CONTROL
SYSTEMS, MATHEMATICAL MODELS, FORTRAN

(U)

IDENTIFIERS: OSPAC COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, ERGODIC PROCESSES, RICCATI
EQUATION

(U)

A DIGITAL COMPUTER PROGRAM WRITTEN IN FORTRAN 4
IS PRESENTED WHICH SOLVES THE STATIONARY LINEAR
QUADRATIC GAUSSIAN OPTIMAL CONTROL PROBLEM.
DETAILED INSTRUCTIONS ON THE USE OF THE PROGRAM AS
WELL AS AN ILLUSTRATIVE EXAMPLE ARE PRESENTED.

(U)

UNCLASSIFIED

DNC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A007 572 12/1 9/2
MINNESOTA UNIV MINNEAPOLIS DEPT OF PSYCHOLOGY

TETREST: A FORTRAN IV PROGRAM FOR
CALCULATING TETRACHORIC CORRELATIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FER 75 44P MCBRIDE, JAMES R. ; WEISS,
DAVID J. ;
REPT. NO. RR-75-2
CONTRACT: N00014-67-A-0113-0029
PROJ: NR-150-343, RR042-04
TASK: RR042-04-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON PSYCHOMETRIC METHODS
PROGRAM.

DESCRIPTORS: *COMPUTER PROGRAMS, *CORRELATION
TECHNIQUES, SAMPLING, MATRICES (MATHEMATICS),
NORMAL DENSITY FUNCTIONS, CONTROL SEQUENCES,
FORTRAN

(U)

IDENTIFIERS: TETREST COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, *TETRACHORIC CORRELATION

(U)

A GENERAL PURPOSE COMPUTER PROGRAM FOR THE
CALCULATION OF A MATRIX OF TETRACHORIC CORRELATIONS
IS DESCRIBED. THIS PROGRAM WAS DEVELOPED FOR USE
IN ADAPTIVE (AND OTHER) TESTING RESEARCH FOR
EXAMINING THE UNIDIMENSIONALITY ASSUMPTION IN LATENT
TRAIT THEORY, IN CONJUNCTION WITH AVAILABLE FACTOR
ANALYSIS PROGRAMS. SEVERAL OTHER POTENTIAL
APPLICATIONS, AS WELL AS DETAILS FOR ITS USE, ARE
DESCRIBED. THE PROGRAM ACCEPTS AS INPUT RAW
DICHOTOMOUS DATA, REDUCED JOINT FREQUENCY DATA, OR
JOINT AND MARGINAL PROPORTIONS, FOR UP TO 75 ITEMS.
OUTPUT OPTIONS INCLUDE THE TETRACHORIC CORRELATION
MATRIX, THE MATRIX OF PHI COEFFICIENTS, FOURFOLD
FREQUENCY TABLES FOR EVERY ITEM PAIR, A JOINT
FREQUENCY MATRIX (WHICH REDUCES ALL THE INFORMATION
IN THE FOURFOLD TABLES TO A SQUARE MATRIX WITH ORDER
EQUAL TO THE NUMBER OF ITEMS), AND A PAIR-BY-PAIR
LISTING OF INPUT PROPORTIONS AND OUTPUT CORRELATIONS
WHICH PERMITS TESTING THE PROGRAM AGAINST PUBLISHED
TABLES OF THE TETRACHORIC CORRELATION. VARIABLE
INPUT AND OUTPUT FORMATTING MAKES THE PROGRAM
CONVENIENT TO THE USE IN CONJUNCTIONS WITH OTHER
ANALYSES BY PACKAGED STATISTICAL PROGRAMS. EXAMPLES
OF INPUT AND OUTPUT ARE PRESENTED. A COMPLETE
FORTRAN 4 LISTING IS INCLUDED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AND7 921 20/12 11/7
STANFORD RESEARCH INST MENLO PARK CALIF

COMPUTATIONAL REPRESENTATION OF CONSTITUTIVE
RELATIONS FOR POROUS MATERIAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 24 JAN 73-31 MAR 74,
MAY 74 170P SEAMAN, LYNN; TOKHEIM, ROBERT

E. CURRAN, DONALD R. ;

CONTRACT: DNADD1-73-C-0119

PROJ: SR1-PYU-2407, DNA-NWED-QAXA

TASK: C306

MONITOR: DNA 3412F

UNCLASSIFIED REPORT

DESCRIPTORS: *POROUS MATERIALS, *X RAY FILTERS,
STRESS STRAIN RELATIONS, MATHEMATICAL MODELS,
ELASTIC PROPERTIES, PLASTIC PROPERTIES,
COMPRESSIVE PROPERTIES, TENSILE PROPERTIES,
EQUATIONS OF STATE, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: CONSTITUTIVE EQUATIONS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

POROUS MATERIALS ARE USED AS A PROTECTION AGAINST
X-RADIATION BECAUSE OF THEIR ABILITY TO MINIMIZE THE
STRESS GENERATED BY THE RADIATION AND TO ATTENUATE
THAT STRESS AS IT PROPAGATES. FOR ACCURATE DESIGN
OF THIS PROTECTION, WAVE PROPAGATION CALCULATIONS ARE
MADE TO SIMULATE THE RADIATION DEPOSITION, STRESS
GENERATION, PROPAGATION, AND SPALLATION CAUSED BY
STRESS WAVES. FOR SUCH A CALCULATION IT IS
NECESSARY TO HAVE A CONSTITUTIVE RELATION (STRESS-
STRAIN-ENERGY RELATION, OR EQUATION OF STATE) THAT
DESCRIBES THE MATERIAL'S RESPONSE TO HEATING AND TO
COMPRESSIVE AND TENSILE LOADING. THE OBJECTIVE OF
THIS REPORT IS TO DOCUMENT A SET OF CONSTITUTIVE
RELATIONS THAT PROVIDE FOR: ELASTIC AND PLASTIC
COMPACTION LOADING WITH RATE DEPENDENCE; HEATING OR
COOLING THAT CAN OCCUR SIMULTANEOUSLY WITH LOADING;
UNLOADING AND RATE-DEPENDENT FRACTURE; AND,
MELTING AND VAPORIZATION, WITH EXPLICIT TREATMENT
OF SOLID, LIQUID, VAPOR, AND MIXED PHASES.
ACCOMPANYING THESE RELATIONS IS A USER'S MANUAL
THAT INCLUDES A DERIVATION OF THE EQUATIONS FOR THE
MODEL AND PROCEDURES FOR USING IT IN LAGRANGIAN
WAVE PROPAGATION COMPUTER PROGRAMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADD 841 9/3 9/2
ENVIRONMENTAL PREDICTION RESEARCH FACILITY (NAVY) MONTEREY
CALIF

THE DELAWARE-DOBSON WAVE REFRACTION
MODEL.

(U)

MAR 75 45P HARE, K. ;
REPT. NO. EPRF-CP NOTE-21

UNCLASSIFIED REPORT

DESCRIPTORS: *OCEAN WAVES, *COMPUTER PROGRAMS,
*COMPUTERIZED SIMULATION, BREAKWATERS, FORTRAN,
REFRACTION, HEIGHT FINDING

(U)

IDENTIFIERS: CDC 3100 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE, WAVE HEIGHT

(U)

A DESCRIPTION OF THE DELAWARE-DOBSON WAVE
REFRACTION MODEL IS PROVIDED, ALONG WITH DETAILED
RUNNING INSTRUCTIONS. THESE INCLUDE THE DATA CARD
SETUP, FLOWCHARTS, AND LISTINGS OF ALL ROUTINES.
ALSO, SAMPLE INPUT CARD, AND THE EXPECTED OUTPUTS
ARE GIVEN.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AC08 991 1976
CALSPAN CORP BUFFALO N Y

PROPELLANT IGNITION AND COMBUSTION IN THE 105MM
HOWITZER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-DEC 74,
JAN 75 190P FISHER, EDWARD B. ;
REPT. NO. CAPSPAN-VQ-5524-D-1
CONTRACT: DAAA21-74-C-0401

UNCLASSIFIED REPORT

DESCRIPTORS: *HOWITZERS, *GUN PROPELLANTS,
*BALLISTIC TESTING, GUN BARRELS, PROPELLANT
GRAINS, PROJECTILES, INTERIOR BALLISTICS, COMPUTER
PROGRAMS, FORTRAN

(U)

IDENTIFIERS: M-103 HOWITZERS(105-MM), FORTRAN
4 PROGRAMMING LANGUAGE

(U)

THE EXISTING CALSPAN MODEL OF THE 175MM GUN WAS
UPGRADED TO REPRESENT THE 105MM HOWITZER. THE
PRIMARY ITEMS THAT WERE ADDED TO THE BASIC CODE WERE
A REPRESENTATION OF METAL PRIMER TUBE WITH AN INITIAL
PAPER LINER AND USE OF SINGLE AND MULTIPERF MI
PROPELLANT IN SPECIFIC BAGS OF THE PROPELLANT CHARGE.
IN ADDITION, IMPROVEMENTS WERE MADE TO THE BASIC
CODE WHICH INCLUDED THE TREATMENT OF PROJECTILE
MOTION, THE ADDITION OF RELATIVE QUICKNESS AND FORCE
AS PROGRAM INPUT PARAMETERS, AND IMPROVEMENT OF THE
BASIC PROPELLANT DRAG FUNCTION. THE PROGRAM WAS
RUN EXTENSIVELY IN AN ATTEMPT TO DETERMINE A UNIQUE
SET OF BARREL RESISTANCE PARAMETERS THAT WOULD
SATISFY ALL ZONES AND TO DETERMINE THE BASIC
SENSITIVITY OF PROPELLANT PROPERTIES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 157 21/5 20/4
DAYTON UNIV OHIO RESEARCH INST

A REVISED COMPUTER PROGRAM FOR AXIAL
COMPRESSOR DESIGN. VOLUME II. PROGRAM
LISTING AND PROGRAM USE EXAMPLE. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 73-30 NOV 74,
JAN 75 250P HEARSEY, RICHARD M. ;
REPT. NO. UDRI-TR-74-47-VOL-2
CONTRACT: F33615-74-C-4030
PROJ: AF-7065
TASK: 706504
MONITOR: ARL 75-0001-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-A009
273.

DESCRIPTORS: *AXIAL FLOW COMPRESSORS, *AERODYNAMIC
CONFIGURATIONS, *COMPUTER PROGRAMS, COMPRESSOR
PARTS, AERODYNAMICS, FLUID DYNAMICS, FORTRAN (U)
IDENTIFIERS: *DESIGN CRITERIA, *AERODYNAMIC
DESIGN, FORTRAN 4 PROGRAMMING LANGUAGE (U)

A REVISED COMPUTER PROGRAM FOR THE DESIGN OF AXIAL
COMPRESSORS IS PRESENTED. IT COMPRISES THREE
PRINCIPAL SECTIONS, TWO ALTERNATIVE MEANS OF
DETERMINING BLADE GEOMETRY AND AN AERODYNAMIC
COMPUTATION FOR THE FLOW THROUGH THE COMPRESSOR.
ONE METHOD OF DETERMINING BLADE GEOMETRY USES
VARIOUS ANALYTIC MEANLINES FOR THE BLADE SECTIONS,
AND LEADS TO THE AERODYNAMIC ANALYSIS OF THE FLOW
THROUGH SPECIFIED BLADING. THE OTHER METHOD
CONSISTS OF CREATING ARBITRARY BLADE SECTIONS TO
FOLLOW THE FLOW DIRECTIONS PREVIOUSLY DETERMINED IN
AN AERODYNAMIC DESIGN CALCULATION. THE AERODYNAMIC
DESIGN SECTION INCORPORATES A LOSS CALCULATION
ROUTINE THAT MAY BE USED TO ESTIMATE THE DESIGN POINT
PERFORMANCE OF THE COMPRESSOR. ONE, TWO, OR ALL
THREE SECTIONS MAY BE USED IN ANY ONE RUN OF THE
PROGRAM. THIS SECOND VOLUME OF TWO DESCRIBING THE
PROGRAM SHOWS THE FORTRAN PROGRAM LISTING AND AN
EXAMPLE OF THE USE OF THE PROGRAM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 173 15/6 15/7
NATIONAL MILITARY COMMAND SYSTEM SUPPORT CENTER WASHINGTON
D C

NMCSSC SIMULATION FOR THE ASSESSMENT OF
TACTICAL NUCLEAR WEAPONS (SATAN II).
SYSTEM DESCRIPTION. CHANGE 3.

(U)

DESCRIPTIVE NOTE: COMPUTER SYSTEM MANUAL,
MAR 75 34P LAUTZENHEISER, MARVIN ;BALES,
WILLIAM R. ;FLETCHER, NICHOLAS H. ;EOFF, DAVID
A. ;KOEHLER, RAYMOND H. ;
REPT. NO. NMCSSC-CSM-SD-133-72-A3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: CHANGE 3 TO REPORT DATED 5 JAN 73,
AD-759 743.

DESCRIPTORS: *WAR GAMES, *NUCLEAR WARFARE,
*COMPUTER PROGRAMMING, NUCLEAR WEAPONS, GAME
THEORY, THREAT EVALUATION, DEPLOYMENT, TARGET
ACQUISITION, DECISION MAKING, ANTIMISSILE DEFENSE
SYSTEMS, DAMAGE ASSESSMENT, COMPUTERIZED SIMULATION,
FORTRAN

(U)

IDENTIFIERS: SATAN 2 COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, IBM 360 COMPUTERS, IBM 360/
50/45 COMPUTERS, SCENARIOS, ALLOCATION MODELS

(U)

SATAN II IS A MODEL FOR THE TWO-SIDED, OPEN PLAY
OF A TACTICAL NUCLEAR WEAPONS CONFLICT ON SIMULATED
BATTLEFIELDS. WHEN PROVIDED BY THE USER WITH
DESCRIPTIONS OF THE ENGAGING FORCES, RATES OF TARGET
ACQUISITION, AND A NUCLEAR WEAPONS EMPLOYMENT
DOCTRINE, THE SATAN II COMPUTER PROGRAMS WILL
AUTOMATICALLY: ESTABLISH THE BATTLE AREA; DEPLOY
THE FORCES; DETERMINE NECESSARY REACTION FOR ACTIONS
TAKEN; ACQUIRE TARGETS; ALLOCATE NUCLEAR WEAPONS TO
FIRE ON THOSE TARGETS; ASSESS THE EFFECTS OF THOSE
FIRES; MOVE THE FORWARD EDGE OF BATTLE AREA
(FFBA); AUTOMATICALLY INTERFACE WITH ATLAS (A
TACTICAL, LOGISTICAL, AND AIR SIMULATION).
THE SATAN II MODEL IS PROGRAMMED IN FORTRAN
IV FOR USE ON THE IBM 360/50/65 COMPUTER. THE
REPORT PROVIDES A DESCRIPTION OF THE MODEL AND ITS
OPERATIONS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 273 21/5 20/4
DAYTON UNIV OHIO RESEARCH INST

A REVISED COMPUTER PROGRAM FOR AXIAL
COMPRESSOR DESIGN. VOLUME 1. THEORY,
DESCRIPTIONS, AND USER'S INSTRUCTIONS.

(U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 OCT 73-30
NOV 74.

JAN 75 125P HEARSEY, RICHARD M. ;
REPT. NO. UDRI-TR-74-47-VOL-1
CONTRACT: F33615-74-C-4030
PROJ: AF-7065
TASK: 706504
MONITOR: ARL 75-0001-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A009
157.

DESCRIPTORS: *AXIAL FLOW COMPRESSORS, *AERODYNAMIC
CONFIGURATIONS, *COMPUTER PROGRAMMING, COMPRESSOR
PARTS, AERODYNAMICS, FLUID DYNAMICS, SUBROUTINES,
FORTRAN, USER NEEDS

(U)

IDENTIFIERS: *DESIGN CRITERIA, *AERODYNAMIC
DESIGN, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT, IN TWO VOLUMES, DESCRIBES A COMPUTER
PROGRAM THAT HAS BEEN DEVELOPED FOR THE DESIGN OF
AXIAL COMPRESSORS. THE PRINCIPAL PURPOSE OF THE
PROGRAM IS TO ENABLE A SINGLE COMPUTER PROGRAM TO
DETERMINE THE GEOMETRY OF THE COMPRESSOR BLADING,
DETAILS OF THE FLOW WITHIN THE COMPRESSOR, AND THE
DESIGN POINT PERFORMANCE OF THE MACHINE. SOME
OPTIONAL CALCULATION ROUTINES WILL ALSO ENABLE
EFFECTS OF MIXING OF THE FLOW TO BE INVESTIGATED.
THE PROGRAM CONSISTS FUNDAMENTALLY OF THREE
SECTIONS: TWO ALTERNATIVE MEANS OF DETERMINING BLADE
GEOMETRY, AND AN AERODYNAMIC COMPUTATION FOR THE FLOW
THROUGH THE COMPRESSOR.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 594 9/5 9/2
GTE SYLVANIA INC NEEDHAM HEIGHTS MASS

EXTENDED SCEPTRE. VOLUME 1. USER'S
MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAY 72-30 JUN 74,
DEC 74 248P BECKER, DAVID ;
CONTRACT: F29601-72-C-0093
MONITOR: AFWL TR-73-75-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, DEC 74, AD-
A009 595.

DESCRIPTORS: *CIRCUITS, *TRANSIENT RADIATION
EFFECTS, *COMPUTER PROGRAMS, CONTROL SEQUENCES,
DEBUGGING (COMPUTERS), FORTRAN, INSTRUCTION
MANUALS

(U)

IDENTIFIERS: *SCEPTRE COMPUTER PROGRAM, IBM 360
COMPUTERS, IBM 7090/94 COMPUTER, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

VOLUME 1 OF EXTENDED SCEPTRE COVERS CIRCUIT
PREPARATION AND ENTRY AND DESCRIBES THE USE OF THE
SPECIAL PROGRAM OPTIONS, INCLUDING: STORED
MODEL; RE-OUTPUT, CONTINUE AND RERUN; THE SUB-PROGRAM
CAPABILITY; AND THE VARIOUS PRINT AND PLOT OPTIONS.
EXAMPLES OF THE USE OF THE OLD AND NEW FEATURES ARE
GIVEN. SEPARATE CHAPTERS CONTAIN SYSTEM
INFORMATION FOR USING SCEPTRE ON THE 7090/94 AND
S/360 MACHINES. CDC 6600 SYSTEM INFORMATION AND
ADDITIONAL NOTES TO THE USER ARE CONTAINED IN VOLUME
1, APPENDIXES G AND H RESPECTIVELY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-ADDY 770 9/2 8/10
NAVAL RESEARCH LAB WASHINGTON D C

A PROGRAM FOR PLOTTING AN ANNOTATED
TRACK.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 75 47P BLODGETT, MARILYN L. ;
MASSINGILL, JAMES V. ;
REPT. NO. MRL-7863
CONTRACT: ARPA ORDER-1787
PROJ: MRL-501-47, ZF52-552
TASK: ZF52-552-01

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.

DESCRIPTORS: *COMPUTER PROGRAMS, *CURVE FITTING,
*PLOTTERS, NAVIGATION, BATHYMETRY, MAGNETIC
ANOMALIES, FORTRAN, CONTROL SEQUENCES
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
3800 COMPUTERS, ANNOT COMPUTER PROGRAM

(U)

(U)

A PROGRAM HAS BEEN WRITTEN FOR PLOTTING AN
ANNOTATED TRACK ON A POLAR STEREOGRAPHIC PROJECTION.
THE PROGRAM READS THE DATA, NAVIGATION, BATHYMETRY,
AND MAGNETICS, FROM A MAGNETIC TAPE IN BCD FORM.
THE DATA IS ANNOTATED EVERY NTH POINT.
NAVIGATION IS ANNOTATED WITH FIX NUMBERS,
BATHYMETRY WITH UNCORRECTED FATHOMS, METERS, AND
CORRECTED METERS, AND THE MAGNETICS WITH THE RESIDUAL
MAGNETIC INTENSITY. THIS PROGRAM ENABLES THE USER
TO PLOT OCEANOGRAPHIC PARAMETERS IN RELATIONSHIP TO
THEIR GEOGRAPHICAL POSITION. THE POLAR
STEREOGRAPHIC PROJECTION WAS USED BECAUSE GREAT
CIRCLES APPEAR AS STRAIGHT LINES AND BECAUSE IT HAS
VERY LITTLE DISTORTION IN THE HIGH LATITUDES. THE
PROGRAM WAS WRITTEN IN FORTRAN 4 FOR USE ON THE
CDC 3800; HOWEVER THE PROGRAM CAN BE CONVERTED TO
READ ON OTHER SYSTEMS WITH LITTLE DIFFICULTY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY : SEARCH CONTROL NO. /ZOM09

AD-ADDY 796 9/2 8/10
NAVAL RESEARCH LAB WASHINGTON D C

A PROGRAM FOR COPYING A GEODATA DATA
TAPE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAP 75 27P BLODGETT, MARILYN L. ;
MASSINGILL, JAMES V. ;
REPT. NO. NRL-7862
CONTRACT: ARPA ORDER-1787
PROJ: NRL-501-47, ZFS2-552
TASK: ZFS2-552-01

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *OCEANOGRAPHIC
DATA, *GEOPHYSICS, NAVIGATION, BATHYMETRY,
GEOMAGNETISM, CONTROL SEQUENCES, FORTRAN (U)
IDENTIFIERS: GEODATA COMPUTER PROGRAM, CDC 3800
COMPUTERS, FORTRAN 4 PROGRAMMING LANGUAGE, GEOREAD
COMPUTER PROGRAM (U)

A PROGRAM HAS BEEN WRITTEN FOR READING A GEODATA
TAPE AND COPYING ALL OR PORTIONS OF THE NAVIGATIONAL,
BATHYMETRIC, AND MAGNETICS DATA BY LISTING, BY
PUNCHING CARDS, AND/OR BY WRITING A NEW TAPE. THE
PROGRAM CAN ELIMINATE DATA NOT TAKEN ON CERTAIN DATES
OR DATA WHICH DO NOT FALL IN A CERTAIN AREA OF
LATITUDE AND LONGITUDE. THE PROGRAM THUS ENABLES
THE SCIENTIST TO EXCHANGE DATA IN ANY CONVENIENT FORM
WHILE ELIMINATING ANY CLASSIFIED INFORMATION. THE
PROGRAM WAS WRITTEN IN FORTRAN 4 FOR USE ON THE
CDC 3800; HOWEVER THE PROGRAM CAN BE CONVERTED TO
RUN ON OTHER SYSTEMS WITH LITTLE DIFFICULTY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM09

AD-ADD9 798 9/2 8/10
NAVAL RESEARCH LAB WASHINGTON D C

A PROGRAM FOR STORING OCEANOGRAPHIC DATA ON
MAGNETIC TAPE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 75 50P BLODGETT, MARILYN L. ;
HASSINGILL, JAMES V. ;
REPT. NO. NPL-78A1
CONTRACT: ARPA ORDER-1787
PROJ: NRL-501-47, ZFS2-552
TASK: ZFS2-552-01

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *OCEANOGRAPHIC
DATA, *GEOPHYSICS, NAVIGATION, BATHYMETRY,
GEOMAGNETISM, CONTROL SEQUENCES, FORTRAN

(U)

IDENTIFIERS: CDC 3800 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE, GEODATA COMPUTER PROGRAM

(U)

A PROGRAM HAS BEEN WRITTEN FOR THE STORAGE OF
NAVIGATION, BATHYMETRY, AND MAGNETICS DATA ON
MAGNETIC TAPE IN BCD FORM. THIS ELIMINATES THE
PROBLEM OF STORING VAST AMOUNTS OF DATA COLLECTED ON
COMPUTER CARDS BY OCEANOGRAPHIC AND GEOPHYSICAL
CRUISES. THIS PROGRAM USES A SLIGHTLY MODIFIED
FORMAT RECOMMENDED BY THE NATIONAL RESEARCH
COUNCIL OF THE NATIONAL ACADEMY OF SCIENCES.
THE PROGRAM WAS WRITTEN IN FORTRAN 4 FOR USE ON
THE CDC 3800; HOWEVER THE PROGRAM CAN BE CONVERTED
TO RUN ON OTHER SYSTEMS WITH LITTLE DIFFICULTY.

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD10 355 20/4
HARRY DIAMOND LABS ADELPHI MD

NUMERICAL STUDY OF STEADY FLOW IN A TWO-
DIMENSIONAL RECTANGULAR CHANNEL WITH AN
ASYMMETRIC VELOCITY INPUT PROFILE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 74 69P HERSHALL, PAUL G. ;
REPT. NO. HDL-TR-1668
PROJ: DA-1-T-061102-B-14-A

UNCLASSIFIED REPORT

DESCRIPTORS: *TWO DIMENSIONAL FLOW, *INCOMPRESSIBLE
FLOW, *FINITE DIFFERENCE THEORY, LAMINAR FLOW,
VORTICES, NAVIER STOKES EQUATIONS, REYNOLDS
NUMBER, ITERATIONS, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: IBM 7094 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE (U)

THE TWO-DIMENSIONAL, VISCOUS, INCOMPRESSIBLE,
STEADY FLOW IN A SEMI-INFINITE RECTANGULAR CHANNEL IS
INVESTIGATED NUMERICALLY. A GIVEN JET WITH
ASYMMETRICAL VELOCITY PROFILE IS ASSUMED AT THE INLET
AND FULLY DEVELOPED FLOW IS ASSUMED AT AN INFINITE
DISTANCE DOWNSTREAM. USING THE SPLIT NAVIER-
STOKES EQUATION, WITH STREAM FUNCTION AND VORTICITY
AS DEPENDENT VARIABLES, CENTRAL DIFFERENCES ARE USED
TO SET UP DIFFERENCE EQUATIONS. THESE ARE RELAXED
IN THE GAUSS-SEIDEL MODE WITH THE AID OF TWO
RELAXATION FACTORS FOR EACH EQUATION AND A MAXIMUM-
NUMBER-OF-ITERATIONS PARAMETER FOR EACH EQUATION.
THE OPTIMUM CONVERGENCE RATE IS INVESTIGATED
EMPIRICALLY AS A FUNCTION OF THESE SIX PARAMETERS.
CONVERGENCE IS OBTAINED IN THIS WAY UP TO
REYNOLDS NUMBER 200 AND OPTIMUM SETS OF VALUES ARE
GIVEN FOR (R SUR E) = 1, 10, 50, AND 200. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A010 647 4/2
DUGWAY PROVING GROUND UTAH

AN ATMOSPHERIC DISPERSION AND ENVIRONMENTAL
PREDICTION TECHNIQUE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 75 251P RUNOLFSON, VELL L. BROWER,
CARL A. JR;
REPT. NO. DPG-FR-M920A
PROJ: RDT/E-1-T-162111-AH-71, USATECOM-5-CO-403-
000-051
TASK: 1-T-162111-AH-71-A-5

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERIC CIRCULATION, *ATMOSPHERE
MODELS, *WIND, AIR POLLUTION, COMPUTERIZED
SIMULATION, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: ATMOSPHERIC DIFFUSION, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

AN ATMOSPHERIC DISPERSION AND ENVIRONMENTAL
PREDICTION TECHNIQUE IN MODEL FORM WAS DEVELOPED
AND VALIDATED. THE MODEL WAS DEVELOPED AS A
COMPUTERIZED AID TO ENABLE RAPID OBJECTIVE ANALYSIS
AND CALCULATION OF ATMOSPHERIC TRAJECTORIES AND
STREAMLINES ON THE MESOSCALE. SEVERAL OBSERVATIONAL
WEIGHTING TECHNIQUES WERE INVESTIGATED TO DETERMINE A
CAPABILITY TO RECONSTRUCT AN IMPOSED WIND FIELD
PATTERN FROM UNIFORM AND NONUNIFORM MEASUREMENTS IN
THE WIND FIELD. FROM THIS, A NEW TECHNIQUE WAS
DEVELOPED FOR APPLICATION TO WIND INTERPOLATION WHICH
REPRESENTED AN IMPROVEMENT OVER THE THIESSEN
POLYGON METHOD. THE DEVELOPED MODEL PROVIDES AN
ADEQUATE INTERPOLATED REPRESENTATION OF WIND FIELDS
AND ATMOSPHERIC TRAJECTORIES IN REAL OR NEAR-REAL
TIME FOR INTERPRETATION OF ATMOSPHERIC POLLUTION AND
HAZARD PROBLEMS. THE MODEL CAN BE PROGRAMMED ON
SMALL PROGRAMMABLE CALCULATORS WITH STORAGE
CAPABILITY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A010 808 15/3 5/3
AMERICAN TECHNICAL ASSISTANCE CORP MCLEAN VA

POSTATTACK RESOURCE MANAGEMENT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 75 85P BULL, ELWYN M.; ADAMS,
HERRON E. ;
REPT. NO. OAD-A-CR-108
CONTRACT: DAMC20-73-C-0267

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE IN MICROFICHE ONLY.

DESCRIPTORS: *CIVIL DEFENSE, *NUCLEAR WARFARE,
*POSTATTACK OPERATIONS, INDUSTRIES, MANPOWER,
LABOR, RESOURCES, ECONOMIC MODELS, MEASUREMENT,
UNITED STATES, FORTRAN

(U)

IDENTIFIERS: *POSTATTACK ECONOMY, INPUT OUTPUT
MODELS, ECONOMIC SECTORS, ECONOMIC RECOVERY,
ROPE 2 COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

THE RUNOUT PRODUCTION EVALUATION (ROPE)
MODEL HAS BEEN EXPANDED TO HANDLE A 173-SECTOR
INPUT-OUTPUT MODEL OF THE US ECONOMY IN THE FIRST
90 DAYS FOLLOWING A NUCLEAR ATTACK. THE INCREASED
NUMBER OF SECTORS PERMITS GREATER ACCURACY IN THE
ASSIGNMENT OF SECTORS TO PRIORITY CLASSIFICATIONS AND
IMPROVES THE MODEL'S ABILITY TO IDENTIFY BOTTLENECKS
IN INTERINDUSTRY FLOWS, WHEN NECESSARY INPUTS ARE IN
SHORT SUPPLY. ALSO, THE ADDITION OF A MANPOWER
CONSTRAINT PERMITS THE ASSESSMENT OF SHORTAGES OF
LABOR INPUTS OR OUTPUT.

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 150 17/8 9/2
DAYTON UNIV OHIO RESEARCH INST

MAXIMUM LIKELIHOOD SOLUTION TO THEODOLITE
DATA.

(U)

DESCRIPTIVE NOTE: CONTRACT REPT.,
MAY 75 234P JOHN LAWRENCE A. REEVES,
JERRY B. I
CONTRACT: N00178-70-C-0056
MONITOR: NSWC/DL CR-71-100

UNCLASSIFIED REPORT

DESCRIPTORS: *THEODOLITES, *DATA PROCESSING,
*COMPUTER PROGRAMS, OPTICAL TRACKING,
MATRICES(MATHEMATICS), PARTIAL DIFFERENTIAL
EQUATIONS, DIGITAL COMPUTERS, COMPUTATIONS
IDENTIFIERS: MAXIMUM LIKELIHOOD ESTIMATION,
FORTRAN 4 PROGRAMMING LANGUAGE, IBM 7094
COMPUTERS, IBM 7030 COMPUTERS

(U)

(U)

THEODOLITE PROCEDURES ARE BRIEFLY REVIEWED AND THE
METHOD BY DR. C. J. COHEN OF THE NAVAL
SURFACE WEAPONS CENTER, DAHLGREN LABORATORY
IS DISCUSSED IN DETAIL. ERRORS OF CLOSURE OF THE
INDIVIDUAL SOLUTION POINTS ARE CALCULATED. A
CRITERION FOR THE REJECTION OF ERRONEOUS DATA FROM
INDIVIDUAL THEODOLITE STATIONS IS INCLUDED.
STATISTICAL PROCEDURES ARE INCLUDED WHICH ESTABLISH
A RELIABLE ESTIMATE OF THE VARIANCE OF THE POSITION
COORDINATES BASED ON THE ERRORS OF CLOSURE OF THE
SOLUTION POINTS. A FORTRAN 4 PROGRAM IS DESCRIBED
WHICH HAS A NUMBER OF OPTIONS WHICH MAKES IT
CONVENIENT FOR THE USER TO ADAPT IT TO HIS PARTICULAR
NEEDS. A UNIQUE FEATURE IS THE TABULATOR PLOT OF
THE ERRORS OF CLOSURE. THE PROGRAM IS OPERATIONAL
ON THE IBM 7094 AND 7030 SYSTEMS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 235 15/3.1 9/2
ARMY CONSTRUCTION ENGINEERING RESEARCH LAB CHAMPAIGN
ILL

FACILITY SIMULATION MODEL FOR ADVANCED BMD
SYSTEMS. VOLUME VIII. OPERATIONAL
MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APP 75 ZOP KAO, A. ; BLACKMON, R. ;
MCDOWELL, E. ;
REPT. NO. CERL-TR-C-2A-VOL-8
PROJ: DA-4-A-664717-D-895
TASK: 4-A-664717-D-89502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 6, AD-A010
632.

DESCRIPTORS: *ANTIMISSILE DEFENSE SYSTEMS, *HARDENED
STRUCTURES, *COMPUTERIZED SIMULATION, HEATING,
VENTILATION, AIR CONDITIONING EQUIPMENT,
UNDERGROUND FACILITIES, UNDERGROUND STRUCTURES,
POWER EQUIPMENT, FORTRAN, CONTROL SEQUENCES,
USER NEEDS, COMPUTER PROGRAMMING
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

THIS OPERATIONAL MANUAL IS THE LAST OF EIGHT
VOLUMES OF THE FACILITY SIMULATION MODEL STUDY.
IT DESCRIBES THE CONTROL CARDS REQUIRED FOR
OPERATING THE MODEL.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 253 4/1
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

REFRACTIVE EFFECTS IN REMOTE SENSING OF THE
ATMOSPHERE WITH INFRARED TRANSMISSION
SPECTROSCOPY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 75 151P SNIDER, DONALD E. ; GOLDMAN,
AARON ;
REPT. NO. RPL-1790
PROJ: RDT/E-1-T-161102-R-53-A

UNCLASSIFIED REPORT

DESCRIPTORS: *ATMOSPHERIC REFRACTION, *AIR MASS
ANALYSIS, *RAY TRACING, TABLES(DATA),
ATMOSPHERIC TEMPERATURE, ATMOSPHERES, COMPUTER
PROGRAMS, FORTRAN

(U)

IDENTIFIERS: REMOTE SENSING, ATMOSPHERIC
COMPOSITION, ATMOSPHERIC PRESSURE, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

A RAY TRACING TECHNIQUE WHICH INCLUDES ATMOSPHERIC
REFRACTION IS USED TO TABULATE THE AIR MASS AND THE
SINGLE LAYER EFFECTIVE TEMPERATURE AND PRESSURE FOR A
GRAZING RAY FROM THE SUN. SUMMER AND WINTER
ATMOSPHERIC PROFILES ARE USED WITH OBSERVER ALTITUDES
RANGING FROM 10 TO 50 KM IN STEPS OF 1 KM. ZENITH
ANGLES RANGING FROM 80 DEGREES UP TO 97 DEGREES ARE
CONSIDERED. RESULTS INDICATE THAT NEGLECTING
REFRACTION IN THE COMPUTATION OF AIR MASS AND
EFFECTIVE PRESSURE CAN LEAD TO OVERESTIMATES OF THESE
QUANTITIES BY UP TO 25% FOR AIRCRAFT OBSERVERS,
60% FOR HIGH ALTITUDE BALLOONS, AND 200% FOR
SATELLITE OBSERVERS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 259 1976
PICATINNY ARSENAL DOVER N J

FORCES ON A SABOT IN THE GUN BORE--A
COMPUTER-AIDED DESIGN TOOL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 75 35P PUDLIENER, N. ; BARRIERES, E. ;
REPT. NO. PA-TR-4734

UNCLASSIFIED REPORT

DESCRIPTORS: *GUN BARRELS, *SABOT PROJECTILES,
*COMPUTER AIDED DESIGN, PRESSURE, INTERIOR
BALLISTICS, SABOTS, FORTRAN, COMPUTER
PROGRAMS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CDC
6500 COMPUTERS

(U)

THIS REPORT DESCRIBES A COMPUTER PROGRAM WHICH
COMPUTES THE STATIC LOADS AND MOMENTS ON A SABOT
SEGMENT WHILE UNDER THE IN-BORE ENVIRONMENT. THE
PHYSICAL CHARACTERISTICS OF THE SABOT SEGMENTS ARE
ALSO COMPUTED. ADDITIONALLY, FROM THE INPUT DATA, A
TAPE IS PREPARED BY THE CDC 6500 COMPUTER FOR
DRAWING SABOT CROSS SECTIONS ON THE CALCOMP 570
DIGITAL PLOTTER, TOGETHER WITH A NANCY
DIGITAL PRINTER PLOT. THE PROGRAM IS
INTENDED AS ANOTHER TOOL IN THE COMPUTER AIDED
DESIGN - ENGINEER (CAD-E) ARMORY.

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMOV

AD-A011 348 9/5 20/11 9/2
UNIVERSITY OF SOUTH FLORIDA TAMPA DEPT OF ELECTRICAL
ENGINEERING

SUPER-SCEPTRE. USER'S MANUAL. A PROGRAM
FOR THE ANALYSIS OF ELECTRICAL, MECHANICAL,
DIGITAL, AND CONTROL SYSTEMS. REVISION
1.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 75 233P BOWERS, JAMES C. O'REILLY,
JOHN F. ISHAW, GARY A. I
CONTRACT: DAAA21-73-C-0433, DAAA21-73-C-0655

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON AMC CAD-E SERIES.
SUPERSEDES AD-782251 AND AD-787522.

DESCRIPTORS: *ELECTRICAL NETWORKS, *MECHANICAL
COMPONENTS, *COMPUTER APPLICATIONS, LOGIC CIRCUITS,
MECHANICAL ENGINEERING, GATES(CIRCUITS),
COMPUTER PROGRAMMING, INSTRUCTION MANUALS,
FORTRAN

(U)

IDENTIFIERS: *SUPERSCEPTRE COMPUTER PROGRAM,
SCEPTRE COMPUTER PROGRAM, FORTRAN 4 PROGRAMMING
LANGUAGE, NETWORK ANALYSIS THEORY, COMPUTER AIDED
DESIGN, FEEDBACK CONTROL

(U)

SUPERSCEPTRE IS A PREPROCESSOR DEVELOPED FOR USE IN
CONJUNCTION WITH THE SCEPTRE CIRCUIT ANALYSIS
PROGRAM. SUPERSCEPTRE ENABLES THE USER TO SIMULATE
ONE-DIMENSIONAL, N-DEGREE OF FREEDOM MECHANICAL
SYSTEMS, TRANSFER FUNCTIONS, AND DIGITAL LOGIC
DEVICES IN ADDITION TO ELECTRICAL NETWORKS.
SUPERSCEPTRE RETAINS THE USEFUL FEATURES OF
SCEPTRE AND INCLUDES A MECHANICAL DESCRIPTION
LANGUAGE ANALOGOUS TO THE SCEPTRE CIRCUIT
DESCRIPTION LANGUAGE. THE LANGUAGE IS EASY TO LEARN
AND NO PREVIOUS COMPUTER PROGRAMMING EXPERIENCE IS
NEEDED TO USE SUPERSCEPTRE EFFECTIVELY. THE
DERIVATION OF EQUATIONS IS NOT REQUIRED SINCE
SUPERSCEPTRE AUTOMATICALLY FORMULATES THE
DESCRIBING EQUATIONS OF A SYSTEM FROM THE COMPONENT
VALUES AND THE SYSTEM TOPOLOGY.

(U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 395 20/5 9/2
MISSOURI UNIV ROLLA DEPT OF ENGINEERING MANAGEMENT

DATA COLLECTION AND ANALYSIS PROGRAM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-31 OCT 74,
OCT 74 12AP WIEBE, HENRY A. BYERS,
JAMES K. ;
CONTRACT: DAHCO4-74-G-0099
MONITOR: ARD 12110.1-RTL

UNCLASSIFIED REPORT

DESCRIPTORS: *CHEMICAL LASERS, *COMPUTER PROGRAMS,
*DATA PROCESSING, GAS DYNAMICS, DATA ACQUISITION,
MASS FLOW, COMPUTATIONS, FORTRAN, CURVE FITTING,
PLOTTERS (U)

IDENTIFIERS: HUNT1 COMPUTER PROGRAM, HUNT2
COMPUTER PROGRAM, HUNTM COMPUTER PROGRAM,
CALCOMP PLOTTERS, FORTRAN 4 PROGRAMMING LANGUAGE (U)

THIS MANUAL CONTAINS THE NECESSARY INFORMATION TO
IMPLEMENT AND MAINTAIN THE LASER COMPUTER PROGRAMS.
THREE SEPARATE PROGRAM SEGMENTS ARE USED FOR DATA
COLLECTION AND ANALYSIS AT THE CHEMICAL LASER
FACILITY. PROGRAM SEGMENT HUNT1 IS USED TO
COLLECT THE DATA, PROGRAM SEGMENT HUNT2 IS USED TO
REDUCE AND ANALYZE THE DATA WHILE PROGRAM SEGMENT
HUNTM IS USED TO MANAGE THE ASSOCIATED DATA
FILES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A011 401 5/1 15/5 9/2
ARMY AVIATION SYSTEMS COMMAND ST LOUIS MO SYSTEMS ANALYSIS
OFFICE

USERS MANUAL: FORECAST OF SCHEDULE/COST
STATUS UTILIZING COST PERFORMANCE REPORTS
OF THE COST/SCHEDULE CONTROL SYSTEMS
CRITERIA: A BAYESIAN APPROACH (FORTRAN
IV).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 75 32P BARKLEY, MARK F. ;
REPT. NO. AMSAV-D-75-2
MONITOR: USAAVSCOM TR-74-60

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JAN 73, AD-
754 576.

DESCRIPTORS: *COST ESTIMATES, *CONTRACTS,
*DEPARTMENT OF DEFENSE, FORECASTING, DECISION
MAKING, SCHEDULING, BAYES THEOREM, COMPUTER
PROGRAMS, FORTRAN, STATISTICAL ANALYSIS, LOGISTICS
PLANNING

(U)

IDENTIFIERS: BAYESIAN ESTIMATION, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THIS REPORT PRESENTS A COMPUTER PROGRAM OF THE
BAYESIAN APPROACH TO FORECASTING COST AND SCHEDULE
PERFORMANCE BY WORK BREAKDOWN STRUCTURE AS REPORTED
BY DEPARTMENT OF DEFENSE (DOD) CONTRACTORS.
THE TECHNIQUE USES THE DATA FROM A DOD CONTRACTOR
COST PERFORMANCE REPORT AS FURNISHED TO THE
GOVERNMENT UNDER THE COST/SCHEDULE CONTROL
SYSTEMS CRITERIA.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 152 13/1 19/3 20/13
AIRESEARCH MFG CO OF CALIFORNIA TORRANCE

ADVANCED HEAT EXCHANGER DEVELOPMENT FOR
ARMY MOBILE APPLICATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 74-APR 75,
JUN 75 108P COOMBS, MURRAY :

REPT. NO. 75-11314

CONTRACT: DAAE07-74-C-0116

PROJ: DA-1-G-663621-DG-07

MONITOR: TACOM TR-12043

UNCLASSIFIED REPORT

DESCRIPTORS: *MILITARY VEHICLES,
*RADIATORS(GENERAL), *HEAT EXCHANGERS, HEAT
TRANSFER, FINS, ROTATION, COOLING, CORES,
MORTLE, COMPUTER PROGRAMS, FORTRAN

(U)

IDENTIFIERS: *ROTARY HEAT EXCHANGERS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE RESULTS OF AN ANALYTICAL AND EXPERIMENTAL
PROGRAM FOR HIGH-PERFORMANCE HEAVY-DUTY RADIATORS IS
PRESENTED. VARIOUS HEAT TRANSFER MATRICES WERE
SURVEYED AND ANALYZED TO SELECT OPTIMUM AIR-SIDE
SURFACES. FROM THIS SURVEY FOUR SURFACES WERE
SELECTED AND FOUR TEST CORES WERE FABRICATED AND
TESTED. PERFORMANCE OF TEST CORES YIELDED 6.7 TO
20.5 PERCENT INCREASE IN HEAT TRANSFER PERFORMANCE
OVER CONVENTIONAL RADIATOR DESIGNS. AN ANALYSIS OF
THE ROTARY HEAT EXCHANGER ALSO WAS PERFORMED. NO
DISTINCT ADVANTAGES FOR THE ROTARY HEAT EXCHANGER IN
THIS APPLICATION WERE REVEALED.

(U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 196 9/2 14/4

ROMF AIR DEVELOPMENT CENTER GRIFFISS AFB N Y

RELIABILITY MAINTAINABILITY AND AVAILABILITY
ANALYSIS TRADEOFF TOOL (R AND M
AVAILABILITY APPROACHES A LIMIT OF 2, TRADE OFF
APPROACHES A LIMIT OF 2).

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 75 23P LYNE, GEORGE I
REPT. NO. RADC-TR-75-149
PROJ: AF-5519

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *RELIABILITY,
TRADE OFF ANALYSES, MAINTAINABILITY, FORTRAN,
TIME SHARING, SUBROUTINES, DIGITAL COMPUTERS,
FAILURE, REPAIR

(U)

IDENTIFIERS: *HONEYWELL 645 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

A COMPUTER PROGRAM WRITTEN IN HONEYWELL FORTRAN
FOR THE HONEYWELL 645 TIME-SHARING SYSTEM, TO
MODEL AND CALCULATE COMPLEX CONFIGURATION/SYSTEM
RELIABILITY AND MAINTAINABILITY VALUES, A BRIEF
DISCUSSION OF THE RELIABILITY CONCEPTS UTILIZED AND
EXAMPLES OF THE PROGRAM UTILIZATION/IMPLEMENTATION IS
PRESENTED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 213 21/9.2
AEROJET SOLID PROPULSION CO SACRAMENTO CALIF

DEVELOPMENT OF A SOLID ROCKET PROPELLANT
NONLINEAR CONSTITUTIVE THEORY. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY 73-JUL 74,
MAY 75 404P FARRIS, RICHARD J. ; HERRMANN,
LEONARD R. ; HUTCHINSON, JAMES R. ; SCHAPERY,
RICHARD A. ;

REPT. NO. ASPC-1074-26F
CONTRACT: F04611-73-C-0060
PROJ: AF-3059
TASK: 305910
MONITOR: AFRPL TR-75-20

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, DATED JUN 73,
AD-769 264. VOLUME 2 DATED JUN 73, AD-769 263.
PREPARED IN COOPERATION WITH CALIFORNIA UNIV.,
DAVIS., AND TEXAS A AND M UNIV., COLLEGE
STATION.

DESCRIPTORS: *SOLID ROCKET PROPELLANTS,
*VISCOELASTICITY, STRESS STRAIN RELATIONS, DYNAMIC
RESPONSE, FAILURE, DEFORMATION, FINITE ELEMENT
ANALYSIS, COMPUTER PROGRAMMING, NONLINEAR SYSTEMS,
FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE OBJECTIVE OF THIS PROGRAM WAS TO DEVELOP AND
DEMONSTRATE THE ACCURACY OF TOTALLY COMPUTERIZED
RESPONSE AND FAILURE CHARACTERIZATIONS AND FINITE
ELEMENT STRESS AND DEFORMATION ANALYSES OF PROPELLANT
SYSTEMS. THESE ANALYSES WERE TO BE BASED ON THE
NONLINEAR VISCOELASTIC CONSTITUTIVE THEORY DEVELOPED
ON EARLIER AIR FORCE AND NAVY CONTRACTS. TO
MEET THESE OBJECTIVES, THE WORK TO BE ACCOMPLISHED
WAS DIVIDED INTO FOUR DISTINCT TASKS. TASKS I
AND III WERE DEVELOPMENT TASKS WHEREIN THE
COMPUTERIZED CHARACTERIZATION AND FINITE ELEMENT
PROGRAMS WERE DEFINED, CODED AND ASSEMBLED. TASKS
II AND IV WERE DEMONSTRATION TASKS WHEREIN THE
DEVELOPMENTS OF TASKS I AND III WERE EVALUATED
IN REALISTIC SITUATIONS. THE TECHNICAL DISCUSSION
OF THIS REPORT PROVIDES A DETAILED DESCRIPTION OF THE
WORK PERFORMED TO MEET THE OBJECTIVES OF THIS
PROGRAM. ALSO INCLUDED UNDER SEPARATE HEADINGS ARE
THE DESCRIPTIONS OF EACH COMPUTER CODE, ITS FUNCTION,
AND SAMPLE PROBLEMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 737 1976

ROCK ISLAND ARSENAL ILL GENERAL THOMAS J RODMAN LAB

ROTATING BAND TORQUES AND STRESSES ON
AMCAWS 30MM COPPER Banded PROJECTILES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 75 144P KANE, MICHAEL R. ;

REPT. NO. RIA-R-TR-75-022

PROJ: DA-1-F-263206-D-044

TASK: 1-F-263206-D-04401

UNCLASSIFIED REPORT

DESCRIPTORS: *GUN BARRELS, *INTERIOR BALLISTICS,
ROTATING BANDS, TORQUE, STRESSES, RIFLING,
FIRING TESTS(ORDNANCE), COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: 30-MM PROJECTILES, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THIS REPORT DETAILS THE STUDY EFFORT AND TESTING
CONDUCTED TO DESIGN A MORE OPTIMUM RIFLING PROFILE
FOR THE ADVANCED MEDIUM CALIBER AIRCRAFT
WEAPON SYSTEM (AMCAWS 30MM) AMMUNITION.
SEVERAL CRITICAL PARAMETERS SUCH AS BEARING STRESS
AND TORQUE HAVE BEEN IDENTIFIED AND THEIR IMPORTANCE
TO THE ULTIMATE SURVIVABILITY OF THE BAND ASSESSED.
THESE CRITICAL PARAMETERS HAVE BEEN INCORPORATED
INTO A PRELIMINARY MODEL TO PREDICT THE SUCCESS OR
FAILURE OF A GIVEN BAND AND BARREL COMBINATION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 419 5/1 15/5
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

COMPARING INVENTORY DEMAND FORECASTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 55P ZEHNA, PETER W. ; TAYLOR,
CHARLES F. , JR;
REPT. NO. NPS-55ZE75051

UNCLASSIFIED REPORT

DESCRIPTORS: *INVENTORY CONTROL, FORECASTING,
MATHEMATICAL PREDICTION, STANDARD DEVIATION, MEAN,
COMPUTATIONS, COMPUTERIZED SIMULATION, COMPUTER
PROGRAMS, FORTRAN (U)

IDENTIFIERS: EXPONENTIAL SMOOTHING, MAXIMUM
LIKELIHOOD ESTIMATION, *DEMAND(ECONOMICS),
FORTRAN 4 PROGRAMMING LANGUAGE (U)

CONTINUED EFFORTS TO COMPARE EXPONENTIAL SMOOTHING
WITH OTHER ALTERNATIVES TO DEMAND FORECASTING ARE
SUMMARIZED. USING STOCK-OUT RISK AT ONE EXTREME
AND OVERSUPPLY AT THE OTHER, THE EFFECTS OF
VARIABILITY IN FORECASTING, EVEN WHEN ACCURATE WITH
RESPECT TO THE MEAN, ARE HIGHLIGHTED. USING A
NORMAL MODEL, EXPONENTIAL SMOOTHING IS IDENTIFIED AS
A MAJOR SOURCE OF VARIABILITY. VARIOUS FORECAST
METHODS ARE COMPARED USING SIMULATION RELATIVE TO
MEAN SQUARED ERROR WHEN MEAN DEMAND IS ALLOWED TO
VARY ACCORDING TO SPECIFIED PATTERNS. IN ALMOST
ALL CIRCUMSTANCES, EXPONENTIAL SMOOTHING CONSISTENTLY
EMERGES AS A FIRST CHOICE. THE SAME ALTERNATIVES
ARE COMPARED USING REAL DEMAND DATA AND THE RESULTS
SHOW EXPONENTIAL SMOOTHING AND MAXIMUM LIKELIHOOD TO
BE ESSENTIALLY EQUIVALENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 632 17/10
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

A MATHEMATICAL MODEL FOR PREDICTING
MICROSEISMIC SIGNALS IN TERRAIN MATERIALS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 73 225P LUNDIEN, JERRY R. ; NIKODEM,
HANS ;
REPT. NO. AFWES-TR-M-73-4
PROJ: DA-1-T-162112-A-131

UNCLASSIFIED REPORT

DESCRIPTORS: *TERRAIN, *MICROSEISMS, *SEISMIC
DETECTION, INTRUSION DETECTION, SEISMIC SIGNATURES,
MATHEMATICAL MODELS, TIME DOMAIN, ANTIINTRUSION
DEVICES, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE MATHEMATICAL MODEL PRESENTED HEREIN ALLOWS THE
USER TO MAKE PREDICTIONS FOR THE WAVE AMPLITUDE AND
FREQUENCY CONTENT OF MICROSEISMIC SIGNALS THAT WOULD
INTERACT WITH A SEISMIC INTRUSION DETECTION DEVICE AT
THE SURFACE OF THE GROUND. THESE SIGNALS ARE
PROPAGATED AS A RESULT OF A FORCE APPLIED TO THE
SURFACE OF A MEDIUM (STRESS) WHICH IN TURN CAUSES
A CORRESPONDING MOTION TO TRAVEL AWAY FROM THE
SOURCE. EFFORTS WERE MADE TO KEEP THE OPERATION OF
THE MODEL AS GENERAL AS POSSIBLE SUCH THAT LITTLE
RESTRICTION IS PLACED ON EITHER THE SOURCE OF THE
SEISMIC SIGNAL OR THE GROUND MEDIA THROUGH WHICH THE
SIGNAL PROPAGATES. AS A RESULT, THE SOURCE SIGNAL
IS NEEDED IN THE FORM OF A TIME DOMAIN STRESS SIGNAL
AT THE POINTS OF CONTACT ON THE GROUND. THE GROUND
MEDIA CAN HAVE ANY SEISMIC PROFILE THAT CAN BE
APPROXIMATED BY A LAYERED VISCOELASTIC STRUCTURE.
EXAMPLES ARE GIVEN OF TWO SITES TO ILLUSTRATE THE
VARIATION IN PREDICTED SIGNALS DUE TO MULTIPLE MODE
RAYLEIGH WAVE PROPAGATION, VARYING DAMPING FACTORS,
VARYING RANGES FROM THE SOURCE, AND INPUT STRESS
SIGNAL SHAPES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 645 19/5 17/8
ARMY MISSILE RESEARCH DEVELOPMENT AND ENGINEERING LAB
REDSTONE ARSENAL ALA GUIDANCE AND CONTROL DIRECTORATE

USER'S GUIDE FOR AN OPTICAL CONTRAST SEEKER
MONTE CARLO TERMINAL HOMING
SIMULATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 300P O'HANIAN, S. L. ; LEE, A.
W. , JR. ; LEWIS, C. L. ;
REPT. NO. RG-75-53
PROJ: DA-1-M-363310-D-074

UNCLASSIFIED REPORT

DESCRIPTORS: *HELICOPTERS, *AERIAL GUNNERY,
*OPTICAL TARGET DESIGNATORS, AIR TO SURFACE
MISSILES, LASER GUIDANCE, MONTE CARLO METHOD,
CIRCULAR ERROR PROBABLE, DEGREES OF FREEDOM,
COMPUTERIZED SIMULATION, COMPUTER PROGRAMS, USER
NEEDS, FORTRAN

(U)

IDENTIFIERS: SIX DEGREES OF FREEDOM, *TARGET
SEEKERS, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT DOCUMENTS THE DEVELOPMENT AND
INCORPORATION OF A STOCHASTIC OPTICAL CONTRAST
SEEKER MODEL INTO THE EXISTENT MONTE CARLO
POINT TARGET TERMINAL HOMING 6-DOF SIMULATION
PROGRAM. IN ADDITION THE BASIC PITCH AND YAW
SEEKER PLATFORM DYNAMICS, PARAMETER TARGET SIZE,
SEEKER BREAKLOCK, SEEKER BLIND RANGE, TRANSPORT LOG,
AND HELICOPTER INDUCED LAUNCH TRANSIENTS ARE
INCLUDED. PLATFORM IMPERFECTIONS SUCH AS MASS
UNBALANCE AND RATE GYRO DRIFTS WERE MODELED. EACH
DATA POINT GENERATED BY THE SIMULATION IS OBTAINED
FROM THE STATISTICAL REDUCTION OF APPROXIMATELY 25
INDIVIDUAL RUNS (DEPENDING ON NUMBER OF
BREAKLOCKS), EACH OF WHICH HAS NEW RANDOM STARTING
AND WITHIN RUN VARIATIONS. THE RUNS ARE REDUCED BY
PARAMETRIC OR NONPARAMETRIC MEANS, DEPENDING ON THE
NORMALITY OF THE MISS DISTANCE POINTS, TO YIELD THE
MISS BIAS (MEAN) AND THE CIRCULAR ERROR
PROBABILITY (CEP).

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A013 081 5/10 9/2
MICHIGAN UNIV ANN ARBOR CENTER FOR RESEARCH ON UTILIZATION
OF SCIENTIFIC KNOWLEDGE

MULTIVARIATE DIAGNOSTIC PROCESSES: THE
PANEL PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 75 54P BOWERS, DAVID G. ;
CONTRACT: N00014-67-A-0181-0048

UNCLASSIFIED REPORT

DESCRIPTORS: •ORGANIZATIONS, •GROUP DYNAMICS,
•COMPUTER PROGRAMS, MATHEMATICAL LOGIC, STANDARD
DEVIATION, REGRESSION ANALYSIS, CONTROL SEQUENCES,
FORTRAN

(U)

IDENTIFIERS: PANAL COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THIS REPORT PRESENTS A COMPUTER PROGRAM, PANAL,
WHICH BUILDS UPON EARLIER ATTEMPTS TO USE THE
COMPUTER IN ORGANIZATIONAL DIAGNOSTIC EFFORTS. A
GENERAL DESCRIPTION, LINE LIST, AND SAMPLE OUTPUT ARE
PROVIDED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A013 107 9/3 9/2 9/1
MITRE CORP BEDFORD MASS

COMPUTER SIMULATION OF MUX BUS VOLTAGE
WAVEFORMS UNDER STEADY STATE CONDITIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 75 71P COSTA, R. A. ;
REPT. NO. MTR-2948
CONTRACT: F19628-75-C-0001
PROJ: AF-6370
MONITOR: ESO TR-75-67

UNCLASSIFIED REPORT

DESCRIPTORS: *AVIONICS, *BUS CONDUCTORS,
*COMPUTERIZED SIMULATION, *MULTIPLEXING,
RELIABILITY(ELECTRONICS), COSTS, VOLTAGE,
WAVEFORMS, AIRBORNE, ELECTRIC CABLES, SHIELDING,
FORTRAN, COMPUTER PROGRAMS, EQUATIONS, STEADY
STATE, TRANSFORMERS, RESISTORS, REMOTE TERMINALS
IDENTIFIERS: COMPUTER SOFTWARE, TWISTED PAIR,
FORTRAN 4 PROGRAMMING LANGUAGE, FAULT ISOLATION

(U)

(U)

DIGITAL TECHNIQUES INVOLVING MULTIPLEX BUSING ARE
BEING ADVOCATED IN MANY QUARTERS AS A MEANS OF
SATISFYING THE NEED FOR GREATER RELIABILITY,
DECREASED MODIFICATION COST, AND SIMPLIFIED
MAINTENANCE OF AIRBORNE AVIONICS SYSTEMS. THIS
PAPER DOCUMENTS EFFORTS TO DEVELOP A COMPUTER
SIMULATION OF A SHIELDED, TWISTED PAIR CABLE
MULTIPLEX BUS WITH MULTIPLE SUBSCRIBERS USING STEADY
STATE EQUATIONS. THE SIMULATION PREDICTS VOLTAGE
WAVEFORMS, DRIVING POINT IMPEDANCES, AND POWER
DISTRIBUTIONS FOR SYSTEMS COMPATIBLE WITH MIL-
STD-1553 (USAF). EXCELLENT AGREEMENT HAS BEEN
FOUND BETWEEN LABORATORY OBSERVATIONS AND THE
COMPUTER SIMULATION, VALIDATING THIS APPROACH.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A013 186 1974 1978
NAVAL ORDNANCE LAB WHITE OAK MD

BOTREF CODE, MODEL 3 - A COMPUTER CODE FOR
PREDICTING TARGET RESPONSE TO BOTTOM
REFLECTION OF UNDERWATER EXPLOSION SHOCK
WAVES FOR SPECIAL CASES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR-30 SEP 74,
DEC 74 167P THORN, E. M. ;
REPT. NO. NOLTR-74-141
PROJ: SF32-311
TASK: SF32-311-501

UNCLASSIFIED REPORT

DESCRIPTORS: *UNDERWATER EXPLOSIONS, *OCEAN BOTTOM,
*SHOCK WAVES, INTERACTIONS, BOTTOM BOUNCE,
REFLECTIVITY, FORTRAN, COMPUTER PROGRAMS
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
BOTREF COMPUTER CODE

(U)

(U)

THIS REPORT DESCRIBES A FORTRAN 4 COMPUTER CODE,
BOTREF, MODEL 3, WHICH IS A MODIFICATION OF THE
ORIGINAL BOTREF CODE DEVELOPED AT THE NAVAL
SURFACE WEAPONS CENTER. THE PRIMARY REASONS
FOR MODIFYING THE CODE WERE TWOFOLD: (1) TO
REDUCE COSTLY CENTRAL PROCESSING TIME, AND (2) TO
DECREASE CENTRAL MEMORY REQUIREMENTS. LIKE THE
ORIGINAL VERSION OF THE PROGRAM, IT CALCULATES THE
BOTTOM-REFLECTION PRESSURE-TIME HISTORY OF UNDERWATER
EXPLOSION SHOCK WAVES, WHERE THE BOTTOM REFLECTION IS
COMPUTED FOR INCIDENT EXPONENTIAL PULSES AND PLANE,
HOMOGENEOUS, ELASTIC BOTTOMS USING A LINEAR
SPHERICAL-WAVE THEORY. CORRECTIONS FOR THE
NONLINEAR VARIATIONS OF THE PEAK PRESSURE AND TIME
CONSTANT WITH DISTANCE ARE INCLUDED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A013 208 9/2 14/4
NAVAL AVIONICS FACILITY INDIANAPOLIS IND

PREDICTION AND OPTIMIZATION OF FAILURE RATES,
200 SERIES (PROF 200) PROGRAMMERS'
MANUAL.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 75 98P LIVERS, PAUL J. ;
REPT. NO. NAFI-TR-1915

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE COPIES ONLY.

DESCRIPTORS: *COMPUTER PROGRAMS,
*FAILURE(MECHANICS), DIAGNOSIS(GENERAL),
RATES, COMPUTATIONS, MATHEMATICAL PREDICTION,
FORTRAN, TABLES(DATA), RELIABILITY, DATA
BANKS, VALIDATION, MANUALS

(U)

IDENTIFIERS: PROF 200 COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, FAILURE RATES, COMPUTER
DIAGNOSIS

(U)

THIS REPORT PROVIDES A NARRATIVE AND DETAILS TO
SUPPLEMENT THE 200 SERIES PREDICTION AND
OPTIMIZATION OF FAILURE RATES (PROF 200)
COMPUTER PROGRAM USER'S MANUAL. PROF 200 WAS
DESIGNED TO BE USED BY ENGINEERS FOR PREDICTING
FAILURE RATE AND RELIABILITY OF SYSTEMS ACCORDING TO
THE METHODS OF MIL-HDBK-217 AND OTHERS. THE
PROGRAM VERSION DESCRIBED HEREIN IS AS OF 31 MAY
74.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A013 527 13/9
SOUTHWEST RESEARCH INST SAN ANTONIO TEX

GEAR TOOTH SCORING INVESTIGATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 29 JUN 70-24 APR 75,
JUL 75 316P KU.P. M. STAPH, H. E. I
CAMPER, H. J. I

CONTRACT: DAAJ02-70-C-0071
PROJ: DA-1-G-162207-AA-72
TASK: 1-G-162207-AA-7202
MONITOR: USAAMRDL TR-75-33

UNCLASSIFIED REPORT

DESCRIPTORS: *GEAR TEETH, SCORING, GEARS,
MECHANICS, COMPUTER PROGRAMS, PREDICTIONS,
FORTRAN

(U)

IDENTIFIERS: DESIGN, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

A METHOD WAS DEvised FOR PREDICTING THE SCORING
POTENTIAL AND SCORING-LIMITED POWER-TRANSMITTING
CAPACITY OF SPUR, HELICAL, AND SPIRAL BEVEL GEARS.
COMPUTER PROGRAMS FOR MAKING SUCH PREDICTIONS FOR
THE THREE GEAR TYPES HAVE BEEN WRITTEN AND ARE
PRESENTED. THE PREDICTIVE SCHEME COMPRISES
BASICALLY TWO STEPS. THE FIRST STEP INVOLVES THE
PREDICTION OF THE IDEAL SCORING-LIMITED POWER-
TRANSMITTING CAPACITY, ASSUMING PERFECT TOOTH
ALIGNMENT AND NO DYNAMIC TOOTH LOAD. THE PROBABLE,
ACTUAL SCORING-LIMITED POWER-TRANSMITTING CAPACITY IS
THEN REDUCED FROM THE IDEAL SCORING-LIMITED POWER-
TRANSMITTING CAPACITY BY APPLYING CORRECTIONS FOR THE
MISALIGNMENT AND DYNAMIC EFFECTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD13 577 19/1 21/2 19/6
CALSPAN CORP BUFFALO N Y

PROPELLANT IGNITION AND COMBUSTION IN THE 155MM
HOWITZER. (U)

DESCRIPTIVE NOTE: FINAL REPT. MAY-DEC 74,
JAN 75 243P FISHER, E. B. ; GRAVES, K.

W. I
REPT. NO. CALSPAN-VQ-5524-D-2
CONTRACT: DAAA21-74-C-0401

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAR 74, AD-
77A 774.

DESCRIPTORS: *HOWITZERS, *GUN PROPELLANTS,
COMBUSTION, IGNITION, INTERIOR BALLISTICS,
PROPELLANT GRAINS, MATHEMATICAL MODELS, COMPUTER
PROGRAMS, FORTRAN (U)

IDENTIFIERS: M-123 PROPELLING CHARGES, XM-123
PROPELLING CHARGES, M-198 HOWITZERS(155-MM),
XM-198 HOWITZERS(155-MM), FORTRAN 4
PROGRAMMING LANGUAGE, SENSITIVITY ANALYSIS (U)

A MATHEMATICAL MODEL HAS BEEN FORMULATED AND
PROGRAMMED IN FORTRAN 4 FOR USE IN THE PROPELLANT
CHARGE DESIGN AND INVESTIGATION OF THE PERFORMANCE
ANOMALIES FOR THE 155MM HOWITZER. THE MODEL SOLVES
THE UNSTEADY GAS DYNAMIC EQUATIONS FOR CONSERVATION
OF MASS, MOMENTUM, AND ENERGY BY FINITE DIFFERENCING
SIMULTANEOUSLY WITH AUXILIARY EXPRESSIONS FOR SUCH
IMPORTANT FEATURES AS GAS GENERATION, BED FRICTION,
BARRLE BOUNDARY LAYER DEVELOPMENT, AND PROJECTILE
ACCELERATION, UNTIL THE PROJECTILE LEAVES THE MUZZLE.
THIS REPORT DETAILS THE MATHEMATICAL CONCEPTS AND
EXPERIMENTAL RESULTS THAT WERE INCORPORATED INTO
MODIFICATIONS OF AN EXISTING MATHEMATICAL MODEL
(FOR THE 175MM GUN) FROM WHICH THE 155MM HOWITZER
MODEL IS DERIVED. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD13 847 1/3 5/5
IBM FEDERAL SYSTEMS DIV GAITHERSBURG MD

PROGRAM DOCUMENTATION FOR THE RPV-AUTO
SIMULATION PROGRAM.

(U)

JAN 75 104P WARTLUFT, D. L. ;
CONTRACT: F33615-72-C-1378
PROJ: AF-71R4
TASK: 718409
MONITOR: AMRL, AMPL TR-75-21, HESS-75-1

UNCLASSIFIED REPORT

DESCRIPTORS: *REMOTELY PILOTED VEHICLES, *FLIGHT
CONTROL SYSTEMS, *COMPUTERIZED SIMULATION, HUMAN
FACTORS ENGINEERING, DISPLAY SYSTEMS, FORTRAN,
COMPUTER PROGRAMMING, USER NEEDS, COMPUTER
GRAPHICS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, IBM
360/40 COMPUTERS

(U)

THE RPV-AUTO SIMULATION PROGRAM IS A REAL-
TIME, INTERACTIVE, GRAPHICS SIMULATION OF A
HYPOTHETICAL DRONE CONTROL FACILITY. ITS FUNCTION
IS TO PROVIDE A MEANS FOR ANALYZING THE EFFECTS OF
NUMEROUS VARIABLES ON THE OPERATOR PERFORMANCE OF A
FIVE-MAN TEAM WHOSE TASK IS TO CONTROL 35 REMOTELY
PILOTED VEHICLES THROUGH THE ENROUTE, TERMINAL,
AND RETURN PHASES OF A SIMULATED STRIKE MISSION.
THE ENROUTE AND RETURN PHASES ARE PERFORMED BY FOUR
OPERATORS SEATED AT IBM 2250 DISPLAY UNITS.
THE TERMINAL PHASE IS SIMULATED BY A SINGLE
OPERATOR WHO CONTROLS A REMOTELY LOCATED TERRAIN
TABLE USING A JOY STICK AND TV RECEIVER. CONTROL
OF THE TERRAIN TABLE IS MAINTAINED BY THE PROGRAM
THROUGH AN IBM 1827 DATA CONTROL UNIT. THE
RPV-AUTO SIMULATION PROGRAM CONTAINS ALL OF THE
FEATURES AVAILABLE IN THE ORIGINAL RPV SIMULATION
PROGRAM PREVIOUSLY DEVELOPED BY IBM PERSONNEL
UNDER THIS SAME CONTRACT. IN ADDITION, THE RPV-
AUTO PROGRAM CONTAINS AN AUTOMATIC FLIGHT PLAN
'AUTO-PATCH') CAPABILITY AND A POSITION REPORT
(PR) SMOOTHING CAPABILITY TO AID THE ENROUTE
OPERATORS IN PERFORMING THEIR TASK.

(U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A014 152 9/2
ARMY MISSILE RESEARCH DEVELOPMENT AND ENGINEERING LAB
REDSTONE ARSENAL ALA GUIDANCE AND CONTROL DIRECTORATE

AN INTERACTIVE COMPUTER GRAPHICS TERMINAL
SYSTEM INTRODUCTION/APPLICATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 75 39P ISOM, LARSON S. ;
REPT. NO. RG-75-54
PROJ: DA-1-M-363310-D-074

UNCLASSIFIED REPORT

DESCRIPTORS: *INTERACTIVE GRAPHICS, *DATA PROCESSING
TERMINALS, *COMPUTER PROGRAMMING, CENTRAL PROCESSING
UNITS, PARALLEL PROCESSING, COMPUTER PROGRAMS,
FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

AN INTERACTIVE COMPUTER GRAPHICS TERMINAL SYSTEM
GENERALLY CONSISTS OF BOTH HARDWARE AND SOFTWARE, THE
SOFTWARE BEING USED TO DRIVE AND CONTROL THE
FUNCTIONING OF THE HARDWARE. THE SOFTWARE IS
COMPOSED OF A USER'S APPLICATION PROGRAM AND A
LIBRARY OF PROGRAM ROUTINES. THE HARDWARE, AN
APPLICATION PROGRAM, AND THE LIBRARY OF PROGRAM
ROUTINES FOR A PARTICULAR INTERACTIVE COMPUTER
GRAPHICS TERMINAL SYSTEM CONFIGURATION ARE DESCRIBED
IN THIS REPORT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A014 329 13/10 20/4
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA MD
SHIP PERFORMANCE DEPT

PRELIMINARY REPORT ON A FORTRAN IV COMPUTER
PROGRAM FOR THE TWO-DIMENSIONAL DYNAMIC
BEHAVIOR OF GENERAL OCEAN CABLE SYSTEMS,

(U)

AUG 75 25P WANG, HENRY T. ;
REPT. NO. SPD-633-01
PROJ: WF11-121
TASK: WF11-121-710

UNCLASSIFIED REPORT

DESCRIPTORS: *BUOYS, *CABLES, DYNAMIC RESPONSE,
OCEAN WAVES, EQUATIONS OF MOTION, DRAG, FORTRAN,
COMPUTER PROGRAMS (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, CABUOY
COMPUTER PROGRAM (U)

THE PRESENT REPORT DESCRIBES PROGRAM CABUOY,
WHICH ANALYZES IN SOME DETAIL THE TWO-DIMENSIONAL
DYNAMIC BEHAVIOR OF GENERAL OCEAN CABLE SYSTEMS
CONSISTING OF A SURFACE BUOY, CONNECTING CABLE, AND
INTERMEDIATE BODIES. THE REPORT BRIEFLY PRESENTS
THE CALCULATIONS WHICH ARE CARRIED OUT IN THE
PROGRAM, GIVES COMPUTER TIME REQUIREMENTS FOR SEVERAL
CABLE CASES, AND OUTLINES SOME RELATIVELY SMALL
ADDITIONAL AREAS OF WORK. DETAILED INPUT
INSTRUCTIONS ARE GIVEN IN THE APPENDIX. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A014 330 5/9 1/2 9/2
QUEST RESEARCH CORP MCLEAN VA

COMPUTER-AIDED TECHNIQUES FOR PROVIDING
OPERATOR PERFORMANCE MEASURES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-AUG 74,
DEC 74 84P CONNELLY, EDWARD M. ;BOURNE,
FRANCIS J. ;LOENTAL, DIANE G. ;KNOOP, PATRICIA
A. ;

CONTRACT: F33615-72-C-2094

PROJ: AF-6114

TASK: 611412

MONITOR: AFHRL

TR-74-87

UNCLASSIFIED REPORT

DESCRIPTORS: *JOB ANALYSIS, *FLIGHT TRAINING,
*FLIGHT MANEUVERS, PERFORMANCE TESTS, PILOTS,
STUDENTS, PERFORMANCE(HUMAN), SKILLS,
PROFICIENCY, MEASUREMENT, ACCEPTABILITY,
VALIDATION, ALGORITHMS, FORTRAN, REGRESSION
ANALYSIS, DATA PROCESSING, TEST METHODS,
OPERATORS(PERSONNEL), MAN MACHINE SYSTEMS,
MEASUREMENT, COMPUTER APPLICATIONS, COMPUTER
PROGRAMS, TURNING FLIGHT, AIRCRAFT LANDINGS, JET
TRAINING PLANES

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, T-37
AIRCRAFT, T-37B AIRCRAFT

(U)

THIS REPORT DOCUMENTS THE THEORY, STRUCTURE, AND
IMPLEMENTATION OF A PERFORMANCE MEASUREMENT PROCESSOR
(WRITTEN IN FORTRAN IV) THAT CAN ACCEPT
PERFORMANCE DEMONSTRATION DATA REPRESENTING VARIOUS
LEVELS OF OPERATOR'S SKILL AND, UNDER USER CONTROL,
ANALYZE DATA TO PROVIDE CANDIDATE PERFORMANCE
MEASURES AND VALIDATION TEST RESULTS. THE PROCESSOR
ACCEPTS TWO TYPES OF INFORMATION: (1) SAMPLE
PERFORMANCE DATA ON MAGNETIC TAPE, AND (2) USER
INFORMATION REFLECTING KNOWLEDGE ABOUT FEATURES OF
THE PERFORMANCE THAT ARE CONSIDERED TO BE IMPORTANT
TO MEASUREMENT. THE SAMPLE PERFORMANCE DATA INPUT
IS SMOOTHED BY THE PROCESSOR IN ORDER TO REMOVE OR
REDUCE NOISE FACTORS IN ACCORDANCE WITH INFORMATION
PROVIDED BY THE USER. CRITERION PERFORMANCE
FUNCTIONS ARE, OPTIONALLY, PROVIDED BY THE USER OR
ARE COMPUTED BY THE PROCESSOR USING SKILLED
PERFORMERS' DATA. THE PROCESSOR THEN DEVELOPS A
DISCRETE REPRESENTATION OF THE CONTINUOUS PERFORMANCE
DATA BASED ON OBSERVED DEVIATIONS FROM THE CRITERION
FUNCTIONS.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A014 331 5/9 1/2
QUEST RESEARCH CORP MCLEAN VA

CANDIDATE T-37 PILOT PERFORMANCE MEASURES
FOR FIVE CONTACT MANEUVERS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 72-AUG 74,
DEC 74 84P CONNELLY, EDWARD M. ;BOURNE,
FRANCIS J. ;LOENTAL, DIANE G. ;MIGLIACCIO,
JOSEPH S. ;BURCHICK, DUANE A. ;
CONTRACT: F33615-72-C-2028
PROJ: AF-6114
TASK: 611412
MONITOR: AFHRL TR-74-88

UNCLASSIFIED REPORT

DESCRIPTORS: •JOB ANALYSIS, •FLIGHT TRAINING,
•FLIGHT MANEUVERS, PILOTS, STUDENTS,
PERFORMANCE(HUMAN), PERFORMANCE TESTS,
VALIDATION, SEGMENTED, FLIGHT SIMULATION, FLIGHT
SIMULATORS, MEASUREMENT, TEST METHODS, FORTRAN,
COMPUTER PROGRAMS, JET TRAINING PLANES, HANDLING,
STANDARDS, REGRESSION ANALYSIS, COMPUTER
APPLICATIONS, TURNING FLIGHT, APPROACH, AIRCRAFT
LANDINGS, PROFICIENCY

(U)

IDENTIFIERS: UNDERGRADUATE PILOT TRAINING, T-37B
AIRCRAFT, T-37 AIRCRAFT, FORTRAN 4 PROGRAMMING
LANGUAGE

(U)

THE OBJECTIVE OF THIS PROGRAM WAS TO DEVELOP
CANDIDATE PILOT PERFORMANCE MEASURES FOR FIVE
UNDERGRADUATE PILOT TRAINING (UPT) CONTACT TRAINING
MANEUVERS FLOWN IN THE T-37B AIRCRAFT. THE WORK
INCLUDED DEVELOPMENT AND APPLICATION OF A METHOD OF
ANALYZING OPERATOR PERFORMANCE TASKS FOR PURPOSES OF
IDENTIFYING CANDIDATE MEASURES. THIS RESULTED IN
SECTORING OF EACH T-37B MANEUVER INTO FUNCTIONAL
SEGMENTS, WHEREIN THE DOMINANT MEASUREMENT VARIABLES
ARE CONSISTENT, AND TASK SEGMENTS, WHEREIN THE
RELATIONSHIPS AMONG THE DOMINANT MEASUREMENT
VARIABLES ARE CONSISTENT. SEVERAL TYPES OF MEASURES
WERE THEN DEFINED WHICH, COLLECTIVELY, SATISFY
MEASUREMENT NEEDS OVER ALL TASK SEGMENTS. SPECIFIC
CANDIDATE MEASUREMENT FORMULAE WERE DEVELOPED FOR
EACH SEGMENT IN ACCORDANCE WITH THE ANALYSIS RESULTS.
COMPUTER PROGRAMS (FORTRAN IV) WERE DEVELOPED AND
IMPLEMENTED TO: (1) SMOOTH, PRINT OUT, AND
PLOT DATA RECORDED ON-BOARD A T-37B AIRCRAFT;
(2) AUTOMATICALLY DETECT TASK SEGMENT
BOUNDARIES;

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A015 297 20/14
SYRACUSE UNIV N Y DEPT OF ELECTRICAL AND COMPUTER
ENGINEERING

A LOW-FREQUENCY EXPANSION FOR
CHARACTERISTIC MODES OF CONDUCTING BODIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 3,
AUG 75 97P SCHUMAN, HARVEY K. ;
HARRINGTON, ROGER F. ;
REPT. NO. TR-75-7
CONTRACT: N00014-67-A-0378-0006
PROJ: NR-371-885

UNCLASSIFIED REPORT

DESCRIPTORS: *ELECTROMAGNETIC SCATTERING,
ELECTROMAGNETIC RADIATION, WIRE, COMPUTER
PROGRAMS, MODES, ELECTROMAGNETIC FIELDS, NUMERICAL
ANALYSIS, FORTRAN (U)
IDENTIFIERS: METHOD OF MOMENTS, FORTRAN 4
PROGRAMMING LANGUAGE (U)

A LOSSLESS, ELECTRICALLY SMALL BODY OF AN ARBITRARY
SHAPE HAS AN ASSOCIATED SET OF CHARACTERISTIC CURRENT
DISTRIBUTIONS. UPON EXCITATION ONLY A FEW OF THESE
CURRENTS ARE THE MAJOR CONTRIBUTORS TO THE RADIATION
FIELD. SINCE THEIR INCEPTION LESS THAN A DECADE
AGO, CHARACTERISTIC-MODE THEORY AND APPLICATION HAVE
BEEN INVESTIGATED PRIMARILY IN THE RESONANCE REGION.
THE PURPOSE OF THE REPORT IS TO EXTEND THIS
INVESTIGATION TO LOW FREQUENCIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 113 20/4 9/2
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

A SOLUTION FOR LAMINAR FLOW PAST A ROTATING
CYLINDER IN CROSSFLOW.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 75 87P FANSLER, KEVIN S. ; DANBERG,
JAMES E. ;
REPT. NO. BRL-1816
PROJ: RDT/E-1-T-161102-A-33H

UNCLASSIFIED REPORT

DESCRIPTORS: *LAMINAR FLOW, LAMINAR BOUNDARY LAYER,
VORTICES, INVISCID FLOW, COMPUTATIONS, COMPUTER
PROGRAMS, TWO DIMENSIONAL FLOW, FORTRAN, NUMERICAL
INTEGRATION, CYLINDRICAL BODIES
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

TWO-DIMENSIONAL SUBCRITICAL FLOW PAST A ROTATING
CYLINDER HAS BEEN THEORETICALLY TREATED TO OBTAIN
AGREEMENT WITH THE BOUNDARY-LAYER CALCULATIONS.
THIS STUDY COMBINED A SOURCE-WAKE BOUND-VORTEX FLOW
MODEL WITH A MOVING-WALL BOUNDARY-LAYER CALCULATION
TO FORCE THE FINAL INVISCID-FLOW MODEL TO BE
CONSISTENT WITH BOUNDARY-LAYER THEORY. CONSISTENCY
WAS OBTAINED BY AN ITERATIVE PROCESS WHEREBY THE
SEPARATION POINTS OF THE INVISCID-FLOW MODEL
CONVERGED TOWARD THE SEPARATION POINTS FOUND BY
BOUNDARY-LAYER CALCULATIONS. THE BOUNDARY-LAYER IS
CALCULATED USING THE INTEGRAL-MOMENTUM AND THE
INTEGRAL-ENERGY EQUATIONS WHERE THE FAMILY OF MOVING-
WALL SIMILARITY BOUNDARY-LAYER SOLUTIONS PROVIDE
RELATIONSHIPS BETWEEN SOME PARAMETERS OF THE
EQUATIONS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 188 12/2
STANFORD UNIV CALIF SYSTEMS OPTIMIZATION LAB

PARAMETRIC TECHNIQUES FOR MULTISTAGE
STOCHASTIC ALLOCATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 75 258P DOHERTY, ROBERT E. ;
REPT. NO. SOL-75-19
CONTRACT: N00014-75-C-0267, AT(04-3)-326
PROJ: NR-047-064

UNCLASSIFIED REPORT

DESCRIPTORS: *ALLOCATIONS, *STOCHASTIC PROCESSES,
*MATHEMATICAL PROGRAMMING, DECISION MAKING,
MATHEMATICAL MODELS, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: UTILITY THEORY, RESOURCE ALLOCATION,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THIS PAPER TREATS A PROBLEM OF MULTISTAGE
ALLOCATION UNDER CONDITIONS OF RISK. AFTER
QUALITATIVE FEATURES OF THE PROBLEM ARE DISCUSSED, AN
EFFICIENCY PROCEDURE IS FORMULATED AND IS SHOWN TO
HAVE DESIRABLE COMPUTATIONAL, UTILITY-THEORETIC, AND
ASYMPTOTIC PROPERTIES. SEVERAL TECHNIQUES ARE THEN
DEVELOPED WHICH ARE APPLICABLE TO AN APPROXIMATION OF
THE EFFICIENT FRONTIER BY PARAMETRIC COMPLEMENTARY
PIVOTING. THESE INCLUDE A PARAMETRIC ALGORITHM FOR
A MINIMAX APPROXIMATION, SOME PARAMETRIC
DECOMPOSITION METHODS, AND AN INTERACTIVE ALGORITHM
FOR CERTAIN PROBLEMS WITH A BLOCK-ANGULAR STRUCTURE.
A LISTING FOR A FORTRAN 4 CODE SOLVING THE
PARAMETRIC LINEAR COMPLEMENTARITY PROBLEM IS GIVEN IN
AN APPENDIX. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 576 9/1
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

A METHOD TO PREDICT THE THERMAL PERFORMANCE
OF PRINTED CIRCUIT BOARD MOUNTED SOLID
STATE DEVICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 57P KELLEHER, MATTHEW D. ;
REPT. NO. NPS-59-KK75071

UNCLASSIFIED REPORT

DESCRIPTORS: *SOLID STATE ELECTRONICS, THERMAL
ANALYSIS, PRINTED CIRCUITS, CIRCUIT BOARDS,
RELIABILITY(ELECTRONICS), PREDICTIONS,
COOLING, HEAT TRANSFER, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: SOLID STATE DEVICES, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE OBJECTIVE WAS TO FORMULATE A DESIGN PROCEDURE
TO BE USED IN THE PREDICTION OF THE THERMAL
PERFORMANCE OF PRINTED CIRCUIT BOARD MOUNTED SOLID
STATE DEVICES (SPECIFICALLY 14 AND 16 PIN DIP'S
AND TO-3 AND TO-46 TRANSISTOR CASES). THE
PROJECT CONSISTS OF AN ANALYTICAL PHASE WHICH
CONSTITUTES THE ACTUAL FORMULATION OF THE DESIGN
PROCEDURE IN THE FORM OF A DIGITAL COMPUTER PROGRAM
WITH APPROPRIATE DOCUMENTATION AND AN EXPERIMENTAL
PHASE WHICH INVOLVES TESTING OF ACTUAL P-C BOARDS
TO VERIFY THE ANALYTICAL MODEL.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 889 15/7 9/2
ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY ABERDEEN PROVING
GROUND MD

ANTITANK COVERING FIRE AND MINEFIELD
EFFECTIVENESS MODEL,

(U)

JUN 75 SSP ROMANKO, THOMAS A. ;
REPT. NO. AMSAA-TR-131
PROJ: DA-1-T-765706-M-541

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTITANK AMMUNITION, *MINEFIELDS,
LAND MINES, ANTITANK WEAPONS, FIREPOWER,
ATTRITION, FORTRAN, COMPUTER PROGRAMS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
*ANTITANK WARFARE, SCENARIOS

(U)

THE REPORT PRESENTS A DETAILED DISCUSSION AND
DOCUMENTATION OF A COMPUTERIZED EXPECTED VALUE MODEL
DESIGNED TO QUANTIFY THE COMBINED AND INDIVIDUAL
ATTRITION EFFECTS OF AN ANTITANK MINEFIELD AND DIRECT
FIRE ANTITANK WEAPONS. A COMPLETE LISTING OF THE
FORTRAN 4 COMPUTER PROGRAM AND A SAMPLE CASE ARE
ALSO PROVIDED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 951 9/2
KANSAS STATE UNIV MANHATTAN DEPT OF COMPUTER SCIENCE

RESEARCH INTO THE DEVELOPMENT OF A LOW-COST
HARDWARE MONITOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 271P WALLENTINE, V. ; ANDERSON, G. ;
KELLER, R. ; FISHER, P. ;
CONTRACT: DAHCO4-74-G-0103
MONITOR: USACSC AT-75-07

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS,
*MINICOMPUTERS, *MONITORS, DATA PROCESSING
TERMINALS, COMPUTER GRAPHICS, LOGIC CIRCUITS,
COMPILERS, COMPUTER PROGRAMMING, COMPUTER
PROGRAMS, FORTRAN

(U)

IDENTIFIERS: *COMPUTER SYSTEMS HARDWARE, *COMPUTER
PERFORMANCE EVALUATION, *COMPUTER HARDWARE MONITORS,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE EFFORT IN PURSUANCE OF THE STATED OBJECTIVE WAS
CONCENTRATED ON THE DESIGN OF THE HARDWARE IN THE
MONITOR, THE DESIGN OF THE SOFTWARE TO CONTROL THE
HARDWARE, AND THE DEVELOPMENT OF A BASIC REPORTING
PACKAGE USEFUL IN ANALYZING THE DATA COLLECTED.
THE DESIGN OBJECTIVES OF THE HARDWARE MONITOR AND
THE SOFTWARE INTERFACE BETWEEN THE MONITOR AND THE
ANALYST WERE AS FOLLOWS: (1) TO PROVIDE ALL
THE CAPABILITIES OF THOSE CURRENTLY AVAILABLE ON THE
COMMERCIAL MARKET; (2) TO PROVIDE THE
MEASUREMENT ANALYST A MORE FLEXIBLE MEASUREMENT TOOL
WITH WHICH TO EXPLORE NEW MEASUREMENTS AND THEIR
CORRELATIONS BEFORE INVESTING THE TIME AND EFFORT TO
MANUALLY SET THE LOGIC FOR DESIRED MEASUREMENTS;
(3) TO DEVELOP A MEASUREMENT FRONT-END FOR A
CENTRAL PROCESSING SYSTEM (MINICOMPUTER) WHICH
COULD BE USED TO MONITOR A LARGE RANGE OF SUBJECT
SYSTEMS (TO PROVIDE A DEVICE CAPABLE OF TRACKING AT
NANOSECOND SPEED AS WELL AS MILLISECOND SPEED; (4)
TO PROVIDE AN AUTOMATED METHOD OF ESTABLISHING (A
LEVEL OF) CORRECTNESS OF THE MEASUREMENT (DATA)
COLLECTED; (5) TO RELIEVE THE MEASUREMENT ANALYST
OF DETAILED CONTROL OF THE HARDWARE MONITOR AND
PERMIT HIM TO CONCENTRATE MORE INTENTLY ON THE
MEASUREMENT EXPERIMENT.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A016 953 13/10 20/4
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF OCEAN
ENGINEERING

A NUMERICAL METHOD FOR TWO-DIMENSIONAL,
CAVITATING, LIFTING FLOWS,

(U)

MAY 75 102P GOLDEN, DANIEL WILSON ;
REPT. NO. TR-81512-1
CONTRACT: N00014-67-A-0204-0083
PROJ: SR009-01
TASK: SR009-01-01

UNCLASSIFIED REPORT

DESCRIPTORS: *HYDROFOILS, *CAVITATION, TWO
DIMENSIONAL FLOW, LIFT, LIFTING SURFACES, ANGLE OF
ATTACK, BOUNDARY VALUE PROBLEMS, NUMERICAL METHODS
AND PROCEDURES, COMPUTER PROGRAMS, FORTRAN
IDENTIFIERS: *CAVITATING FLOW, LIFTING FLOW,
FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

A NUMERICAL METHOD FOR TWO-DIMENSIONAL CAVITATING
FLOW IS DEVELOPED FOR THE FLAT PLATE. THE
LINEARIZED BOUNDARY VALUE PROBLEM IS REFORMULATED AS A
SET OF COUPLED INTEGRAL EQUATIONS. THE INTEGRAL
EQUATIONS ARE APPROXIMATED NUMERICALLY. THE
NUMERICAL APPROXIMATION IS EXECUTED BY A FORTRAN 4
COMPUTER PROGRAM. THE COMPUTED RESULTS ARE
COMPARED TO THE ANALYTIC SOLUTION. THIS METHOD
SHOULD PROVIDE INSIGHT INTO DEVELOPING A METHOD FOR
THREE-DIMENSIONAL CAVITATING FLOWS AND IS READILY
EXTENDABLE TO CAMBERED PROFILES.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD17 120 15/7 9/2
RAND CORP SANTA MONICA CALIF

AN IMPROVED VERSION OF THE TACTICAL
RESOURCES AND COMBAT EFFECTIVENESS (TRACE)
MODEL.

(U)

MAY 75 174P CUTLER, LEOLA ; LEWIS, DONALD
E. INTILLS, GARY F. ;
REPT. NO. R-1733-PR
CONTRACT: F44620-73-C-0011

UNCLASSIFIED REPORT

DESCRIPTORS: *TACTICAL AIR SUPPORT, *AIR STRIKES,
AIR TO SURFACE MISSILES, CLOSE SUPPORT,
INTERDICTION, KILL PROBABILITIES, WEAPON SYSTEM
EFFECTIVENESS, MISSION PROFILES, WAR GAMES,
COMPUTER PROGRAMMING, FORTRAN, COMPUTERIZED
SIMULATION

(U)

IDENTIFIERS: TRACE COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, *SORTIES, RESOURCE
ALLOCATION

(U)

THE REPORT DESCRIBES THE ASSUMPTIONS AND
METHODOLOGY OF THE IMPROVED TRACE MODEL AND ALSO
SERVES AS A USER'S MANUAL. TRACE IS A ONE-SIDED
EXPECTED-VALUE MODEL THAT SIMULATES THE ALLOCATION
AND CONSUMPTION OF RESOURCES FROM A SET OF AIRBASES
IN A COMBAT ENVIRONMENT; OUTPUT IS IN TERMS OF
TARGETS DESTROYED, AIRCRAFT LOST, AND MUNITIONS
CONSUMED. TRACE IS STRUCTURED SO THAT SORTIE
ALLOCATION POLICIES, MUNITIONS AVAILABILITY
(THROUGH PREPOSITIONED STOCKS AT THE AIRBASES OR
THROUGH RESUPPLY), FORCE ACTIVITY RATES, WEATHER,
AND WEATHER FORECASTING ABILITY ARE EASILY VARIED BY
THE USER. THE MODEL WAS DEVELOPED TO PROVIDE A
MEANS OF RELATING MATERIAL RESOURCE AVAILABILITY AND
OPERATIONAL CAPABILITY.

(U)

UNCLASSIFIED

DDC REPORT HIRIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A017 123 15/7 9/2
RAND CORP SANTA MONICA CALIF

PROGRAM LISTING FOR AN IMPROVED VERSION OF
THE TRACE MODEL.

(U)

MAY 75 129P CUTLER, LEOLA ; LEWIS, DONALD
E. HILLS, GARY F. ;
REPT. NO. R-1734-PR
CONTRACT: F44620-73-C-0011

UNCLASSIFIED REPORT

DESCRIPTORS: •TACTICAL AIR SUPPORT, •AIR STRIKES,
•COMPUTER PROGRAMS, AIR TO SURFACE MISSILES, CLOSE
SUPPORT, INTERDICTION, KILL PROBABILITIES, WEAPON
SYSTEM EFFECTIVENESS, MISSION PROFILES, WAR GAMES,
COMPUTERIZED SIMULATION, FORTRAN

(U)

IDENTIFIERS: TRACE COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, •SORTIES, RESOURCE
ALLOCATION

(U)

THE REPORT CONTAINS LISTINGS OF THE SUBROUTINES OF
THE IMPROVED VERSION OF THE TRACE SIMULATION MODEL
AND ITS THREE AUXILIARY DATA PREPROCESSING PROGRAMS.
TRACE IS A ONE-SIDED EXPECTED-VALUE MODEL THAT
SIMULATES THE ALLOCATION AND CONSUMPTION OF RESOURCES
FROM A SET OF AIRBASES IN A COMBAT ENVIRONMENT, AND
ESTIMATES THE RESULTS OF APPLYING A GIVEN SET OF
TACTICAL AIRCRAFT AND AIR-TO-GROUND CONVENTIONAL
MUNITIONS AGAINST A SPECIFIED ARMY OF ENEMY TARGETS.
THE AUXILIARY PROGRAMS ARE USED TO PREPARE INPUT
DATA FOR USE BY TRACE. ALL THE PROGRAMS ARE
WRITTEN IN FORTRAN 4.

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A017 372 20/13 17/1 20/6
TEXAS UNIV AT AUSTIN APPLIED RESEARCH LABS

EXPERIMENTAL INVESTIGATION OF THE LASER-
EXCITED THERMOACOUSTIC ARRAY IN WATER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR 73-31 DEC 74,
SEP 75 73P CULBERTSON, C. ROBERT ;
REPT. NO. ARL-TR-75-51
CONTRACT: N00014-70-A-0166-0015
PROJ: NR-261 187

UNCLASSIFIED REPORT

DESCRIPTORS: *ACOUSTIC ARRAYS, *LASER BEAMS, SONAR
ARRAYS, LIGHT TRANSMISSION, RUBY LASERS, NEODYMIUM
LASERS, THERMAL EXPANSION, HEATING, SOUND
TRANSMISSION, FREQUENCY MODULATION, INSTRUMENTATION,
MATHEMATICAL MODELS, NONLINEAR SYSTEMS, THESES,
GREEN'S FUNCTION, FORTRAN

(U)

IDENTIFIERS: *THERMOACOUSTIC ARRAYS, OPTICAL
MODULATION, NEODYMIUM GLASS LASERS, NONLINEAR
ACOUSTICS, TAPATRN COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, MOST PROJECT-4

(U)

AN EXPERIMENTAL EVALUATION OF THE WESTERVELT-
LARSON THEORY FOR THE PRESSURE AND DIRECTIVITY OF
THE LASER-EXCITED THERMOACOUSTIC ARRAY IN WATER HAS
BEEN CONDUCTED. INSTRUMENTATION INCLUDES A
MODULATED LASER SYSTEM THAT OPERATES AT 0.6943
MICROMETER AND 1.06 MICROMETERS, WITH A MODULATED
FREQUENCY RANGE OF 5 TO 80 KHZ. APPARATUS AND
METHODS FOR MEASURING THE ATTENUATION OF LIGHT IN
WATER AT THE OPTICAL WAVELENGTHS OF INTEREST HAVE
ALSO BEEN IMPLEMENTED. AN EXISTENCE TEST CONFIRMED
THAT AN ACOUSTIC SIGNAL IS PRODUCED BY THERMALIZATION
OF MODULATED LASER LIGHT IN LAKE WATER. THE SOUND
IS GENERATED IN A BEAM WITH A MEASURED HALF-POWER
ANGLE THETA THAT IS IN REASONABLE AGREEMENT WITH
THEORETICAL PREDICTION. THE SOURCE LEVEL IS A
LINEAR FUNCTION OF LASER OUTPUT POWER AND MEASURED
ABSOLUTE VALUES OF SOURCE LEVEL ARE IN GOOD AGREEMENT
WITH THEORY. IT MAY BE CONCLUDED THAT THE
WESTERVELT-LARSON THEORY IS A VALID MODEL FOR
PREDICTING THE PRESSURE AND DIRECTIVITY OF THE LASER-
EXCITED THERMOACOUSTIC ARRAY IN WATER.

(U)

AD-A036 500

DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA
FORTRAN 4 PROGRAMMING LANGUAGE.(U)
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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A017 400 20/12 20/2
INTERNATIONAL BUSINESS MACHINES CORP HOPEWELL JUNCTION N Y
EAST FISHKILL LAB

DAMAGE PROFILES IN SILICON AND THEIR IMPACT
ON DEVICE RELIABILITY.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 JAN-30 JUN 75,
JUL 75 65P SCHWUTKE, G. H. ;
REPT. NO. TR-6, TR-22.1921
CONTRACT: DAH015-72-C-0274, ARPA ORDER-2196

UNCLASSIFIED REPORT

DESCRIPTORS: *SILICON, *CRYSTAL DEFECTS,
*SEMICONDUCTOR DEVICES, ELECTRON MICROSCOPY,
ELECTRON DIFFRACTION, CRYSTAL STRUCTURE,
ORIENTATION(DIRECTION), METAL OXIDE
SEMICONDUCTORS, FORTRAN, COMPUTER PROGRAMS,
EPITAXIAL GROWTH, SEMICONDUCTING FILMS,
SUBSTRATES, RELIABILITY(ELECTRONICS)

(U)

IDENTIFIERS: SCANNING ELECTRON MICROSCOPY, KIKUCHI
EFFECTS, ELECTRON DIFFRACTION ANALYSIS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THIS REPORT DESCRIBES WORK DEALING WITH
IMPROVEMENTS OF ADVANCED MEASUREMENT TECHNIQUES.
CHAPTER 1 DEALS WITH THE COMPUTER GENERATION OF
KIKUCHI PATTERNS NEEDED FOR COMPLEX STRUCTURAL
ANALYSIS OF CRYSTAL DEFECTS IN SILICON. THE PROGRAM
IS APPLICABLE TO A LARGE VARIETY OF PROBLEMS AND CAN
BE USED TO GENERATE KIKUCHI MAPS FOR DIFFERENT
CRYSTAL STRUCTURES, EACH DESIRED CRYSTAL ORIENTATION,
AND ELECTRON ENERGY. THE PROGRAM CAN ALSO BE USED
TO GENERATE CHANNELING PATTERNS FOR SCANNING ELECTRON
MICROSCOPY APPLICATION. THE REPORT PROVIDES A
COMPLETE SET OF COMPUTER-GENERATED KIKUCHI MAPS FOR
SILICON AND 200 KEV ELECTRONS. A COMPLETE PROGRAM
IN FORTRAN IV USING AN IBM 1800 COMPUTER IS
ALSO GIVEN. THE SECOND PART DESCRIBES THE
APPLICATION OF MOS C-V AND MOS G-V
MEASUREMENTS FOR THE EVALUATION OF EPITAXIAL FILMS ON
SILICON OR INSULATOR SUBSTRATES. IT IS SHOWN THAT
THE PRESENCE OF AN UNDERLYING JUNCTION REQUIRES
IMPORTANT PRECAUTIONS WITH USE OF THE MOS C-V
MEASUREMENT TECHNIQUE. THE JUNCTION REQUIRES AN
INCREASED NUMBER OF COMPONENTS IN THE EQUIVALENT
NETWORK, WHICH IMPEDES THE ANALYSIS. THIS CHAPTER
SHOWS HOW TO SOLVE THE PROBLEM. VALUES FOR MOS
DOT DIAMETER, LAYER AND SUBSTRATE RESISTIVITY, OXIDE
THICKNESS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD17 759 9/2 12/1
BOLT PERANEK AND NEWMAN INC CAMBRIDGE MASS

GUIDE TO THE MANMOD2SSB (MAN-MACHINE MODEL,
VERSION 2: STEADY STATE, BATCH
VERSION). COMPUTER PROGRAM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 75 60P BERLINER, JEFFREY E. ;
CONTRACT: DAAH01-75-C-0158
MONITOR: RD CR-76-2

UNCLASSIFIED REPORT

DESCRIPTORS: *MAN MACHINE SYSTEMS, *CONTROL THEORY,
*COMPUTER PROGRAMS, MAN COMPUTER INTERFACE,
CONTROL SEQUENCES, ANALYSIS OF VARIANCE,
FORTRAN (U)

IDENTIFIERS: *MANMOD2SSB COMPUTER PROGRAM,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE MANMOD2SSB COMPUTER PROGRAM ALLOWS SEPARATE
SPECIFICATION OF THE 'INTERNAL MODEL' AND THE SYSTEM
MODEL IN THE OPTIMAL CONTROL MODEL OF THE HUMAN
OPERATOR. THIS GUIDE IS THE USER'S MANUAL FOR THE
PROGRAM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A017 853 15/5 15/7 1/5
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

DEVELOPMENT OF PROCEDURE FOR AIRFIELD SITE
EVALUATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 75 99P KEOWN, MALCOLM P. ; PARKS,
JUDITH A. ; STOLL, JACK K. ;
REPT. NO. WES-TR-M-75-3
PROJ: DA-4-A-062103-A-859, DA-4-A-162121-AT-31
TASK: 4-A-062103-A-85905, 4-A-162121-AT-3102

UNCLASSIFIED REPORT

DESCRIPTORS: *LANDING FIELDS, *SITE SELECTION,
CLOSE SUPPORT, MISSION PROFILES, FORWARD AREAS,
DECISION MAKING, COMPUTER PROGRAMMING, FORTRAN,
ARMY OPERATIONS
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

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THIS REPORT DESCRIBES THE MATHEMATICAL TECHNIQUES
USED AS THE BASIS FOR DEVELOPING A SET OF RELATED
COMPUTER PROGRAMS THAT COLLECTIVELY REPRESENT AN
AUTOMATED PROCEDURE FOR AIRFIELD SITE EVALUATION. A
MODEL THAT NUMERICALLY DELINEATES THE TOPOGRAPHY OF A
SELECTED SITE AND A MODEL FOR THE LAYOUT OF AN
AIRFIELD ARE ANALYTICALLY EXAMINED FOR COMPATIBILITY.
IF THE AIRFIELD AND SITE GEOMETRIES ARE DETERMINED
TO BE COMPATIBLE, CONSTRUCTION TIME AND COST
ESTIMATES CAN BE GENERATED FOR VEGETATION CLEARING,
TOPSOIL STRIPPING, EXCAVATION AT A CUT LOCATION AND
HAULAGE OF SOIL FROM THE CUT TO A FILL LOCATION,
SPREADING OF FILL, SOIL COMPACTION, AND PLACEMENT OF
A RUNWAY SURFACE. THE RUNWAY SURFACES INCLUDED IN
THE INVENTORY OF THE EVALUATION PROCEDURE ARE
UNSURFACED WITH OR WITHOUT MEMBRANE, LIGHT-DUTY MAT
WITH OR WITHOUT MEMBRANE, MEDIUM-DUTY MAT WITH OR
WITHOUT MEMBRANE, FLEXIBLE PAVEMENT, AND RIGID
PAVEMENT.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A018 360 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

GUIDE TO THE MANMODSSB COMPUTER PROGRAM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 75 43P BERLINER, JEFFREY E. ;
CONTRACT: DAAHD1-75-C-0158
PROJ: DA-1-M-362303-A-214
MONITOR: RD CR-76-1

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *COMPUTERIZED
SIMULATION, *HUMAN FACTORS ENGINEERING, MAN COMPUTER
INTERFACE, MAN MACHINE SYSTEMS, TIME DOMAIN,
SUBROUTINES, COSTS, COMPUTER PRINTOUTS, PUNCHED
CARDS, DIGITAL COMPUTERS, FORTRAN (U)
IDENTIFIERS: MANMODSSB COMPUTER PROGRAMMING,
FREQUENCY DOMAIN, CDC 6600 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE (U)

THE MANMODSSB COMPUTER PROGRAM IS A COMPUTERIZED
IMPLEMENTATION OF THE OPTIMAL CONTROL MODEL OF THE
HUMAN OPERATOR FOR THE GENERATION OF DESCRIBING
FUNCTIONS. IN ADDITION TO THE FREQUENCY DOMAIN
REPRESENTATION OF THE HUMAN OPERATOR THERE IS A TIME
DOMAIN SUBROUTINE WHICH GENERATES TIME HISTORIES FOR
USE IN MONTE-CARLO SIMULATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A018 545 9/1 10/2 9/2
THERMAL TECHNOLOGY LAB INC BUFFALO N Y

DEVELOPMENT OF LIGHTWEIGHT TRANSFORMERS FOR
AIRBORNE HIGH POWER SUPPLIES. VOLUME 1. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 72-JAN 75,
JUN 75 324P HADMESSER, R. ; LOCKWOOD, D. ;
MCNALL, R. ; WELSH, JAMES P. ;
CONTRACT: F33615-72-C-1944
PROJ: AF-3145
TASK: 314532
MONITOR: AFAPL TR-75-15-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2. AD-A018
546.

DESCRIPTORS: *TRANSFORMERS, *POWER SUPPLIES, PULSE
TRANSFORMERS, AIRBORNE, HIGH POWER, LIGHTWEIGHT,
MINICOMPUTERS, COMPUTER PROGRAMMING,
SUPERCONDUCTORS, COOLING, HEAT TRANSFER, THERMAL
ANALYSIS, CRYOGENICS, FORTRAN, DIELECTRICS (U)
IDENTIFIERS: HYPERCONDUCTORS, CDC 6600 COMPUTERS,
FORTRAN 4 PROGRAMMING LANGUAGE, SPECIFIC
WEIGHT (U)

THIS FINAL TECHNICAL REPORT DESCRIBES THE
PROGRESS AND RESULTS ACHIEVED DURING TWO YEARS OF
EFFORT IN THE SUCCESSFUL DEVELOPMENT OF LIGHTWEIGHT
HIGH POWER AIRBORNE TRANSFORMERS. THE FEASIBILITY
OF DEVELOPING CONTINUOUS DUTY LIGHTWEIGHT HIGH POWER
AIRBORNE TRANSFORMERS HAVING TYPICAL SPECIFIC WEIGHTS
OF THE ORDER OF 0.25 LBS PER KVA OR LESS AT 400
HZ OR HIGHER, HAS BEEN SUCCESSFULLY ESTABLISHED.
DESIGN PROCEDURES, METHODOLOGIES, AND COMPUTER
PROGRAMS HAVE BEEN DEVELOPED WHICH WILL PERMIT THE
OPTIMIZATION OF SELECTED TRANSFORMER CHARACTERISTICS
AND DETAIL THE DESIGN OF SINUSOIDAL, INVERTER, OR
PULSE TRANSFORMERS IN THE POWER RANGE OF 250 KVA TO
100 MVA WITH VOLTAGES UP TO 200 KV. VOLUME 1
OF THIS REPORT DESCRIBES THE TECHNICAL WORK DONE AND
THE RESULTS OBTAINED DURING THIS TRANSFORMER
DEVELOPMENT PROGRAM. VOLUME 2 IS A COMPLETE
COMPUTER USER MANUAL GIVING TRANSFORMER DESIGN
PROCEDURES WHICH HAVE BEEN IMPLEMENTED ON ASD'S
CDC 6600 COMPUTING SYSTEMS IN EXTENDED FORTRAN
4 UNDER THE SCOPE 3.4 OPERATING SYSTEM. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A018 870 9/2 16/2
ARMY MISSILE RESEARCH DEVELOPMENT AND ENGINEERING LAB
REDSTONE ARSENAL ALA GUIDANCE AND CONTROL DIRECTORATE

UTILIZATION OF COMMON SUBROUTINE AND FUNCTION
SUBPROGRAMS IN MISSILE SYSTEM
SIMULATIONS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 3AP ISOM, LARMON ; HAZEL, LARRY ;
REPT. NO. RG-76-26
PROJ: DA-1-X-363309-D-073

UNCLASSIFIED REPORT

DESCRIPTORS: *SUBROUTINES, *FLIGHT PATHS, *GUIDED
MISSILE TRAJECTORIES, *COMPUTERIZED SIMULATION,
*COMPUTER PROGRAMS, DATA BASES, USER NEEDS,
GUIDED MISSILES, FORTRAN, WEAPON SYSTEMS (U)
IDENTIFIERS: FUNCTION PROGRAMS, COMPUTER PROGRAM
LIBRARY, SIGMA 5 COMPUTER, SIGMA 5 SIMULATION
FACILITY, FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE REQUIREMENTS FOR THE INTEGRATION OF
DIFFERENTIAL EQUATIONS AND FUNCTION GENERATION ARE
COMMON TO ALL WEAPON (MISSILE) SYSTEM FLIGHT PATH
(TRAJECTORY) SIMULATION PROGRAMS. SUBROUTINE
SUBPROGRAMS AND FUNCTION SUBPROGRAMS TO PERFORM THESE
REQUIREMENTS HAVE BEEN PROVIDED AS ROUTINES ON A USER
LIBRARY FOR THE XEROX SIGMA 5 ANALOG COUPLER
DRIVER SIMULATION FACILITY. A DETAILED
DESCRIPTION AND THE CALL STATEMENTS FOR THESE USER
LIBRARY SUBPROGRAM SUBROUTINES ARE CONTAINED WITHIN
THIS REPORT. EXAMPLES DEPICTING THE SUBPROGRAM
USAGE ALONG WITH THE RESULTS OBTAINED ARE ALSO
GIVEN. HERETOFORE, THESE SUBPROGRAM SUBROUTINES AND
FUNCTIONS HAVE BEEN INCLUDED IN SOURCE FORM WITH THE
MAIN PROGRAM WHEN SUBMITTED TO THE ZEROZ SIGMA 5
SIMULATION FACILITY FOR COMPILING, LOADING, AND
EXECUTING.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A020 156 9/2 9/5
ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT CENTER
FORT BELVOIR VA

METHOD OF OPTIMIZATION OF A PERIODIC STEP
WAVEFORM FOR MINIMIZATION OF TOTAL HARMONIC
DISTORTION.

(U)

DESCRIPTIVE NOTE: REPT. FOR MAY 74-FEB 75,
JUN 75 57P KOKAN,RAZI A. ;
REPT. NO. USAMERDC-2148

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *WAVEFORMS,
*INVERTER CIRCUITS, *HARMONIC GENERATORS,
*RECTIFIERS, DISTORTION, FORTRAN, ITERATIONS,
NUMERICAL ANALYSIS, ALGORITHMS, OPTIMIZATION,
PROGRAMMING LANGUAGES, SWITCHING CIRCUITS, WAVE
FUNCTIONS, VOLTAGE

(U)

IDENTIFIERS: CDC 6600 COMPUTERS, ELECTRONIC
INVERTERS, CONVERGENCE, FORTRAN 4 PROGRAMMING
LANGUAGE, CONSTRAINTS

(U)

A METHOD OF OPTIMIZATION OF A FUNCTION OF N
VARIABLES UNDER A CONSTRAINT IS DEVELOPED. THIS
METHOD IS APPLIED TO THE OPTIMIZATION OF N STEP
VOLTAGE HEIGHTS AND THE STEP WIDTH X IN DEGREES
(ALL STEP WIDTHS ARE EQUAL) OF A PERIODIC STEP
WAVEFORM SO THAT THE TOTAL HARMONIC DISTORTION IS
MINIMIZED. NUMERICAL TECHNIQUES ARE USED, AND
ITERATIVE ALGORITHMS ARE DEVELOPED AND IMPLEMENTED BY
A COMPUTER PROGRAM, WRITTEN IN FORTRAN IV, FOR THE
USAMERDC CDC 6600 COMPUTER. STEP WAVEFORMS WITH
3, 4, AND 5 STEPS HAVE BEEN OPTIMIZED. THE
PROCEDURE AND THE RESULTS ARE SUMMARIZED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO: /ZOM09

AD-A020 536 15/5 9/2
DAVID W TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
BETHESDA MD

QUEST: A SIMULATION MODEL FOR THE NAVY
QUICKTRANS SYSTEM USER'S MANUAL,

(U)

DEC 75 15HP MELTON, RAYMOND E. ;
REPT. NO. DTNSRDC-435H

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR TRANSPORTATION, *COMPUTERIZED
SIMULATION, MATHEMATICAL MODELS, COMPUTER PROGRAMS,
SCHEDULING, QUEUEING THEORY, ROUTING, CARGO
VEHICLES, MILITARY TRANSPORTATION, FORTRAN

(U)

IDENTIFIERS: *QUICKTRANS SYSTEM, *QUEST COMPUTER
PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE, CDC 6600
COMPUTERS, *TRANSPORTATION MODELS

(U)

QUEST, THE ACRONYM FOR QUICKTRANS ECONOMIC
SIMULATION AND TABULATION, IS A COMPUTERIZED
SIMULATION OF THE NAVAL QUICK RESPONSE
TRANSPORTING SYSTEM (QUICKTRANS) DEVELOPED TO
PERMIT FORECASTING OF SYSTEM OPERATING COSTS, VEHICLE
UTILIZATION, AND ROUTE SCHEDULING LOAD FACTORS FOR
PROPOSED ROUTES, TIME SCHEDULES, AND VEHICLES. THIS
EVENT-STORING SIMULATION, WRITTEN IN FORTRAN IV,
ACCEPTS (AS INPUT DATA) TERMINALS, ROUTES AND
TIME SCHEDULES, SEASONAL WEATHER VARIATIONS, CARGO
TYPES AND QUANTITIES, NUMBERS OF VEHICLES BY TYPE,
VEHICLE MAINTENANCE/SERVICING STATEMENTS, SERVICING
LOCATIONS, AND UNIT COSTS. THE EXECUTION ROUTINES
COMPUTE THE TIME-DISTANCE-TONNAGE RELATIONSHIPS FOR
THE STATED INPUT DATA TO ESTABLISH CARGO LOADED
TRANSLOADED, AND OFF-LOADED AT EACH TERMINAL; QUEUE
CHARACTERISTICS; UTILIZATIONS FOR BOTH VEHICLES (BY
TYPE) AND ROUTES; COSTS PER TON-MILE, TON-MILEAGE,
AVERAGE DISTANCE CARGO IS MOVED; AND BOTH ROUTE AND
SYSTEM OPERATING COSTS. THE OUTPUT CAN PROVIDE THE
ENTIRE HISTOGRAPHIC RECORD AND/OR MANAGEMENT
SUMMARIES AT SPECIFIED SIMULATION INTERVALS IN
DESIRED FORMATS FOR INFORMATION AT TERMINALS, ALONG
ROUTE SEGMENTS, ROUTES AND FOR THE ENTIRE SYSTEM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A022 031 9/2 8/10 8/2
NAVAL RESEARCH LAB WASHINGTON D C

A PROGRAM TO PLOT AN ANNOTATED TRACK OR A
TRACK AND BATHYMETRY OR MAGNETIC PROFILE ON A
MERCATOR PROJECTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
FER 76 41P BUDGETT, MARILYN L. ;
HASSINGLILL, JAMES V. ;
REPT. NO. NRL-7930
CONTRACT: ARPA ORDER-1787
PROJ: NRL-501-47, ZF52-552
TASK: ZF52-552-001

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *MAP PROJECTION,
*OCEANOGRAPHIC DATA, FLOW CHARTING, FORTRAN,
DIGITAL COMPUTERS, ALGORITHMS, PROFILES,
BATHYMETRY, TRACKING, NAVIGATIONAL AIDS,
ACOUSTIC SURVEILLANCE

(U)

IDENTIFIERS: *MERCATOR PROJECTION, FORTRAN 4
PROGRAMMING LANGUAGES

(U)

A PROGRAM HAS BEEN WRITTEN FOR PLOTTING AN
ANNOTATED TRACK OR FOR PLOTTING A TRACK AND THE
SUPERIMPOSED BATHYMETRY OR MAGNETIC PROFILE ON A
MERCATOR PROJECTION. THE PROGRAM READS THE DATA
(NAVIGATION, BATHYMETRY, OR MAGNETICS) FROM A
MAGNETIC TAPE IN BCD FORM. THE PROGRAM WILL
ANNOTATE EVERY POINT OR EVERY NTH POINT. NAVIGATION
IS ANNOTATED WITH FIX NUMBERS, BATHYMETRY WILL
UNCORRECTED FATHOMS, METERS, OR CORRECTED METERS, AND
MAGNETICS WITH THE RESIDUAL MAGNETIC INTENSITY. THE
PROFILE SERIES IS PLOTTED PERPENDICULAR TO THE TRACK,
USING UNCORRECTED FATHOMS OR METERS FOR BATHYMETRY
AND RESIDUAL MAGNETIC INTENSITY FOR MAGNETICS. THE
PROGRAM WAS WRITTEN IN FORTRAN IV FOR USE ON A
CDC 3600 COMPUTER; HOWEVER, THE PROGRAM CAN BE
CONVERTED TO RUN ON OTHER SYSTEMS WITH LITTLE
DIFFICULTY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD22 771 19/5 15/7
ARMAMENT SYSTEMS INC ANAHEIM CALIF

INDIRECT FIRE MODEL COMPUTER PROGRAM -
USER MANUAL.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 76 100P MICHELS, HERMAN W. ;
CONTRACT: N00123-75-C-1265
MONITOR: AMSAR/SA R-16

UNCLASSIFIED REPORT

DESCRIPTORS: *ARTILLERY FIRE, *WAR GAMES,
*COMPUTERIZED SIMULATION, MATHEMATICAL MODELS,
TARGETING, INPUT OUTPUT PROCESSING, FORTRAN,
PUNCHED CARDS

(U)

IDENTIFIERS: IBM-360 COMPUTERS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE INDIRECT FIRE MODEL COMPUTER PROGRAM
COMPUTES EFFORT AND EFFECTIVENESS MEASURES OF
ARTILLERY SYSTEMS IN A WAR GAME SITUATION. EFFORT
IS MEASURED IN TERMS OF COST AND WEIGHT OF AMMUNITION
EXPENDED AGAINST A LIST OF AREA TARGETS.
EFFECTIVENESS IS MEASURED IN THE AMOUNT OF
PERSONNEL AND MATERIAL DAMAGE INFLICTED. EACH
TARGET IS DESCRIBED BY LOCATION, TIME OF ACQUISITION,
ESTIMATED TARGET DURATION TIME, NUMBER OF TACTICAL
ELEMENTS (PERSONNEL, TANKS, TRUCKS, AND ARMORED
PERSONNEL CARRIERS), AND OTHER ESTIMATED AND
ACTUAL DATA.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A022 856 5/9 9/2
ROWLAND AND CO HADDONFIELD N J

ANNUAL REPORT IN SUPPORT OF TECHNICAL
DEVELOPMENT PLAN 43-03X - EDUCATION AND
TRAINING.

(U)

DESCRIPTIVE NOTE: REPT. FOR 16 NOV 74-15 NOV 75 ON
PHASE 4.

NOV 75 32P MARLOWE, EDWARD ; ESCOBAR,
CARLOS ; ROWLAND, GEORGE E. ;
REPT. NO. R/C-75-11-122
CONTRACT: N00014-74-C-0269
PROJ: HR-154-353

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PHASE 3, AD-A006
102.

DESCRIPTORS: *NAVAL TRAINING, *MAN COMPUTER
INTERFACE, *DATA MANAGEMENT, *PERSONNEL MANAGEMENT,
PROGRAMMED INSTRUCTION, COMPUTER AIDED INSTRUCTION,
FEEDBACK, ON LINE SYSTEMS, STUDENTS, PILOTS,
NAVAL PERSONNEL, FORTRAN, DATA PROCESSING,
DECISION MAKING, COMPUTER APPLICATIONS, COMPUTER
PROGRAMMING, DATA BASES, MANAGEMENT INFORMATION
SYSTEMS

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THIS REPORT DESCRIBES PART OF A MULTI-PHASE PROGRAM
TO DEVELOP A DATA MANAGEMENT SYSTEM AND A
STUDENT MANAGEMENT SYSTEM. THE DATA
MANAGEMENT SYSTEM INCORPORATES A GENERALIZED DATA
BASE MANAGEMENT CAPABILITY, PROVIDES FOR A HIGH
DEGREE OF AUTOMATION OF THE DATA ENTRY AND STORAGE
OPERATIONS, AND INCLUDES USER DESIGN FEATURES THAT
WILL RESULT IN AN ONLINE, INTERACTIVE AND TURNKEY
TYPE SYSTEM. WHEN IMPLEMENTED IT CAN REDUCE
PROGRAMMING COSTS ASSOCIATED WITH THE WRITING OF
APPLICATION PROGRAMS THAT USE THE DATA BASE CONTENT.
ITS ENGLISH LANGUAGE-LIKE DIALOG WILL ACCOMMODATE
A WIDE RANGE OF USER BACKGROUNDS AND ITS INTERACTIVE
FEATURES WILL SUPPORT RAPID QUERIES AND SUPPORT
RELIABLE USER OPERATION OF THE SYSTEM.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD23 014 19/3 15/5
ARMY TANK-AUTOMOTIVE COMMAND WARREN MICH

XMI LIFE CYCLE COST MODEL - MAINTENANCE
COSTS: MODEL DESCRIPTION AND USER'S
GUIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FER 76 53P SCHMUHL, JOHN C. ;
REPT. NO. TACOM-76-023

UNCLASSIFIED REPORT

DESCRIPTORS: *TANKS(COMBAT VEHICLES), *LIFE
CYCLE COSTS, *COMPUTERIZED SIMULATION, MATHEMATICAL
MODELS, MAINTENANCE, FORTRAN, COMPUTER PROGRAMS,
TIME SHARING (U)
IDENTIFIERS: M-1 TANKS, XM-1 TANKS, FORTRAN 4
PROGRAMMING LANGUAGE, HONEYWELL 440 COMPUTERS (U)

THE XMI LIFE CYCLE COST MODEL COMPUTES THE
MAINTENANCE COSTS INCURRED DURING THE OPERATIONAL
PHASE OF A FLEET OF VEHICLES. THE MODEL IS GENERAL
IN NATURE AND CAN BE USED TO MODEL OTHER VEHICLE
SYSTEMS BESIDES THE XMI TANK SYSTEM. THE COMPUTER
PROGRAM REPRESENTING THE MODEL IS WRITTEN IN THE
FORTRAN IV PROGRAMMING LANGUAGE AND IS IMPLEMENTED
ON THE GSA/ATLANTA GE/HONEYWELL 440
INTERACTIVE COMPUTER SYSTEM. THE MODEL TREATS
BASICALLY THREE TYPES OF COSTS: ON-VEHICLE
MAINTENANCE, OFF-VEHICLE MAINTENANCE, AND
SCHEDULED VEHICLE OVERHAUL. IN ADDITION, THE
MODEL HAS THE CAPABILITY OF VEHICLE PHASE-IN AND
PHASE-OUT POLICIES TO ACCURATELY DEPICT FLEET AGE
MATURITY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A023 752 17/7 9/2
NAVAL OCEANOGRAPHIC OFFICE WASHINGTON D C

OPTIMAL SMOOTHING -- A POSTSURVEY
NAVIGATION DATA PROCESSING PROGRAM.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 BOP BYRNES, HERMAN J. IFAGIN,
SAMUEL L. ;
REPT. NO. N00-TR-242

UNCLASSIFIED REPORT

DESCRIPTORS: *NAVIGATION, *DATA PROCESSING,
*NUMERICAL ANALYSIS, NAVIGATIONAL AIDS, KALMAN
FILTERING, ALGORITHMS, MATHEMATICAL MODELS, DEAD
RECKONING, MATHEMATICAL PROGRAMMING, MATHEMATICAL
LOGIC, OPTIMIZATION, COMPUTENIZED SIMULATION,
OPERATIONS RESEARCH

(U)

IDENTIFIERS: *DATA SMOOTHING, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

AN OPTIMAL SMOOTHING TECHNIQUE FOR PROCESSING
SURVEY NAVIGATION DATA IS DESCRIBED, AND A FORTRAN
4 COMPUTER PROGRAM IMPLEMENTATION IS PRESENTED. THE
TECHNIQUE MAKES EFFICIENT USE OF NAVIGATION
REDUNDANCY TO PRODUCE AN IMPROVED SURVEY PLOT. THE
SMOOTHING PROGRAM, CAPABLE OF OPERATION IN A VARIETY
OF NAVIGATION MODES, HAS BEEN EXERCISED USING REAL
AND SIMULATED SURVEY DATA AND IS SHOWN TO HAVE
SIGNIFICANT ACCURACY ADVANTAGES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A024 444 15/7 9/2
STANFORD RESEARCH INST MENLO PARK CALIF

TECHNICAL REPORT SUSTAINED OPERATIONS
MODEL. HELICOPTER WAR GAME SIMULATOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 74 148P MONAHAN, RICHARD H. ;
CONTRACT: DAAJ01-74-C-0918
MONITOR: ORSAV TR-76-19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A024 443.

DESCRIPTORS: *ATTACK HELICOPTERS, *COMPUTERIZED
SIMULATION, *COMBAT EFFECTIVENESS, *COMPUTER
PROGRAMS, WAR GAMES, MATHEMATICAL MODELS, MISSION
PROFILES, COSTS, COMBAT SUPPORT, ORDNANCE, FUEL
CONSUMPTION, MAINTENANCE, MONTE CARLO METHOD,

FORWARD AREA DEFENSE SYSTEMS, FORTRAN

(U)

IDENTIFIERS: SOM COMPUTER PROGRAM, GLOBAL COMPUTER
PROGRAM, EVADE COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

THE SUSTAINED OPERATIONS MODEL (SOM) IS AN
EVENT SEQUENCED MONTE CARLO SIMULATION COMPUTER
PROGRAM THAT UTILIZES EXTERNALLY GENERATED COST AND
SINGLE MISSION EFFECTIVENESS RESULTS TO EXAMINE THE
EFFECTIVENESS OF A GROUP OF ATTACK HELICOPTER (AH)
AIRCRAFT OPERATING IN A COMBAT ENVIRONMENT OVER A
SUSTAINED PERIOD OF OPERATIONS. THE SINGLE MISSION
EFFECTIVENESS INPUTS USED BY SOM ARE GENERATED BY
AN EXTERNAL PROGRAM SUCH AS GLOBAL OR EVADE,
COMPLEX COMBAT SIMULATION PROGRAMS THAT EVALUATE THE
OUTCOME OF AN ATTACK BY AN AH FIRE TEAM AGAINST
ENEMY GROUND UNITS THAT INCLUDE AN AIR DEFENSE
CAPABILITY. THE COST FACTOR IS REPRESENTED IN THE
ACTUAL USE OF SOM, WHERE COMPARISONS OF ALTERNATIVE
AH SYSTEMS ARE BASED ON USING EQUAL COST FORCE
SIZES. ADDITIONAL COST FACTORS CAN ALSO BE APPLIED
TO END GAME RESULTS SUCH AS AIRCRAFT LOSSES, ORDNANCE
AND FUEL EXPENDITURES, AND MAINTENANCE DEMANDS, TO
DERIVE COMPARATIVE OPERATIONAL COSTS DURING THE
PERIOD OF OPERATIONS.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A024 485 19/4 9/2
ADVANCED TECHNOLOGY LABS INC WESTBURY N Y

DESCRIPTION OF FORTRAN PROGRAM DAWNA FOR
ANALYSIS OF MUZZLE BLAST FIELD.

(U)

DESCRIPTIVE NOTE: CONTRACT REPT.,
APR 76 75P HANLET, J. IERDOS, J. I
REPT. NO. ATL-TM-184
CONTRACT: DAAD05-74-C-0784
MONITOR: BRL CR-302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT. NO. BRL-297.

DESCRIPTORS: *MUZZLE VELOCITY, *COMPUTER PROGRAMS,
*BLAST WAVES, ACOUSTIC WAVES, SYMMETRY,
SUBROUTINES, DIFFERENTIAL EQUATIONS, PUNCHED
CARDS, FORTRAN, MACH NUMBER, FLUID DYNAMICS
IDENTIFIERS: DAWNA COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, TRANSITIONAL BALLISTICS

(U)

(U)

THE FORTRAN 4 PROGRAM DAWNA DESCRIBED IN THIS
REPORT SOLVES THE SET OF PARTIAL DIFFERENTIAL
EQUATIONS GOVERNING THE FLOW ON THE AXIS OF SYMMETRY
BETWEEN THE BLAST WAVE AND THE MACH DISC OF A
MUZZLE BLAST FIELD. A COMPLETE DESCRIPTION OF THE
METHOD OF SOLUTION OF THE GOVERNING EQUATIONS AND
STATEMENT OF THE BOUNDARY CONDITIONS CAN BE FOUND IN
BRL CONTRACTOR'S REPORT NO. 297.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A024 720 8/5
OHIO STATE UNIV COLUMBUS DEPT OF GEODETIC SCIENCE

COVARIANCE EXPRESSIONS FOR SECOND AND LOWER
ORDER DERIVATIVES OF THE ANOMALOUS
POTENTIAL.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT. NO. 2,
JAN 76 66P TSCHERNING, C. C. ;
REPT. NO. DGS-225
CONTRACT: F19628-76-C-0010
PROJ: AF-7600
TASK: 760003
MONITOR: AFGL TR-76-0052

UNCLASSIFIED REPORT

DESCRIPTORS: *GEODESY, COVARIANCE, GEOPOTENTIAL,
COMPUTER PROGRAMS, COMPUTATIONS, MATHEMATICAL
MODELS, FORTRAN, SUBROUTINES
IDENTIFIERS: COVAX COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

AUTO-AND CROSS-COVARIANCE EXPRESSIONS FOR THE
ANOMALOUS POTENTIAL OF THE EARTH AND ITS FIRST AND
SECOND ORDER DERIVATIVES ARE DERIVED BASED ON THREE
DIFFERENT DEGREE-VARIANCE MODELS. A FORTRAN 4
SUBROUTINE IS LISTED AND DOCUMENTED THAT MAY BE USED
FOR THE COMPUTATION OF AUTO- AND CROSS-COVARIANCE
BETWEEN ANY OF THE FOLLOWING QUANTITIES: (1)
THE ANOMALOUS POTENTIAL (T), (2) THE NEGATIVE
GRAVITY DISTURBANCE/R, (3) THE GRAVITY ANOMALY
(DELTA G), (4) THE RADIAL COMPONENT OF THE
GRADIENT OF DELTA G, (5) THE SECOND ORDER RADIAL
DERIVATIVE OF T, (6), (7) THE LATITUDE AND
LONGITUDE COMPONENTS OF THE DEFLECTION OF THE
VERTICAL, (8), (9) THE DERIVATIVES IN
NORTHERN AND EASTERN DIRECTION OF DELTA G, (10),
(11) THE DERIVATIVES OF THE GRAVITY DISTURBANCE
IN NORTHERN AND EASTERN DIRECTION, (12)-(14)
THE SECOND ORDER DERIVATIVES OF T IN NORTHERN, IN
MIXED NORTHERN AND EASTERN AND IN EASTERN DIRECTION.
VALUES OF DIFFERENT KINDS OF COVARIANCE OF SECOND
ORDER DERIVATIVES FOR VARYING SPHERICAL DISTANCE AND
HEIGHT ARE TABULATED.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A024 794 15/3 9/2
ARMY ARMAMENT COMMAND ROCK ISLAND ILL SYSTEMS ANALYSIS
DIRECTORATE

METHODOLOGY FOR COMPUTER-GENERATION OF LINES
OF CONSTANT BURST-KILL PROBABILITIES
(FOOTPRINTS) FOR GUN AIR DEFENSE SYSTEMS
(ISO-PK).

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 76 91P OLSON,STUART ;WILLIAMS,
ROBERT ;
REPT. NO. DRSAR/SA/R-11

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTIAIRCRAFT DEFENSE SYSTEMS,
*ANTIAIRCRAFT GUNNERY, *KILL PROBABILITIES, AIR
DEFENSE, FIRE CONTROL SYSTEMS, LEAD ANGLE,
MATHEMATICAL MODELS, COMPUTER PROGRAMS,
FORTRAN

(U)

IDENTIFIERS: SENSITIVITY ANALYSIS, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

AN IMPORTANT TOOL FOR ANALYZING THE RELATIVE
EFFECTIVENESS OF GUN AIR DEFENSE SYSTEMS IS A PLOT OF
LINES OF CONSTANT (ISO) PROBABILITY OF KILL (PK)
IN THE VOLUME OF SPACE SURROUNDING THE PLANNED
DEPLOYMENT OF THE SYSTEM; HENCE, THE NAME ISO-PK.
THESE PLOTS ARE USUALLY PRESENTED AS TWO-
DIMENSIONAL SECTIONS TAKEN AT SELECTED PLACES IN THE
VOLUME. THE LINES OF CONSTANT KILL PROBABILITY
SOMETIMES FORM ELLIPTICAL TRACES AND, PERHAPS, FOR
THIS REASON, THEY ARE COMMONLY REFERRED TO AS
'FOOTPRINTS'. THIS REPORT PRESENTS THE COMPUTER
PROGRAM AND EXPLAINS THE ALGORITHM WHICH CALCULATES
THE BURST-KILL PROBABILITY AND AUTOMATICALLY PLOTS
THE FOOTPRINTS ON A COMPUTER LINE PRINTER. ALSO
INCLUDED IN THIS REPORT IS AN ANALYSIS OF WEAPON
POINTING ERRORS WHICH INCLUDES THE EFFECTS OF LEAD
ANGLE GENERATION. THIS MODEL, WHICH MAY BE TERMED
AN ERROR BUDGET MODEL, WAS ORIGINALLY DEVELOPED FOR
THE AIR DEFENSE EVALUATION BOARD (ADEB).
INSTRUCTIONS FOR USE OF THE PROGRAM AND A SAMPLE
PROBLEM ARE PRESENTED.

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A024 804 20/6
NAVAL WEAPONS CENTER CHINA LAKE CALIF

LOW EFFICIENCY DIFFRACTION GRATING
THEORY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 76 132P ELSON, J. M. ;
PROJ: AF-3326
TASK: 332608
MONITOR: AFWL TR-75-210

UNCLASSIFIED REPORT

DESCRIPTORS: *DIFFRACTION GRATINGS, *LIGHT
SCATTERING, *INFRARED RADIATION, *BEAM SPLITTING,
OPTICAL COATINGS, DIELECTRIC FILMS, SURFACE WAVES,
SURFACE ROUGHNESS, MATHEMATICAL ANALYSIS, COMPUTER
PROGRAMS, PERTURBATION THEORY, FORTRAN
IDENTIFIERS: MULTI COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

THE SCATTERING OF LIGHT FROM LOW EFFICIENCY
REFLECTIVE DIFFRACTION GRATINGS IS THEORETICALLY
ANALYZED USING A FIRST-ORDER PERTURBATION TECHNIQUE.
WHILE RESULTS ARE CONCERNED PRIMARILY WITH
RADIATION OF 10.6 MICROMETER WAVELENGTH, THE THEORY
IS VALID FOR ALL WAVELENGTHS FOR WHICH THE DIELECTRIC
CONSTANT OF THE GRATING IS NEGATIVE. RESULTS APPLY
TO GRATING GROOVE PROFILES OF ARBITRARY SHAPE IN THE
LOW EFFICIENCY REGION. INCLUDED ARE ANALYSES OF
DIFFRACTION FROM BARE GRATINGS, FROM GRATINGS
OVERCOATED WITH A SINGLE DIELECTRIC LAYER AND FROM
GRATINGS WITH MULTIPLE DIELECTRIC LAYERS.
CONSIDERATION IS ALSO GIVEN TO DIFFUSE SCATTERING
FROM RANDOM ROUGHNESS SUPERIMPOSED ON THE PERFECTLY
FORMED GRATING GROOVE PROFILE AND TO COUPLING OF THE
INCIDENT BEAM ENERGY INTO SURFACE WAVES.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A025 081 4/2
NAVAL RESEARCH LAB WASHINGTON D C

COMPUTER PROGRAM FOR CONVERTING VISUAL
DISPLAY FROM DEC. GT-44 TO STROMBERG
DATAGRAPHIX 4020.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 76 27P BOYD, FRANK E.; HUDNALL,
JAMES M.;
REPT. NO. NRL-MR-3273
PROJ: AF21-222, NRL-R01-87
TASK: AF21-222-404

UNCLASSIFIED REPORT

DESCRIPTORS: *HARD COPY, *COMPUTER PRINTOUTS,
*COMPUTER PROGRAMS, *CATHODE RAY TUBE SCREENS,
DISPLAY SYSTEMS, CONVERSION, FORTRAN,
SUBROUTINES, MAGNETIC TAPE, CORE STORAGE, DATA
PROCESSING EQUIPMENT
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

(U)

A METHOD OF OBTAINING A PERMANENT COPY OF THE
DISPLAY PRESENTED ON THE DIGITAL EQUIPMENT
CORPORATION'S GT-44 COMPUTER SYSTEM IS PRESENTED.
TRANSFER IS MADE TO THE STROMBERG DATAGRAPHICS,
INC. TYPE S-C 4020 COMPUTER RECORDER. THE
LATTER IS CAPABLE OF PRODUCING FILM NEGATIVES OF THE
DISPLAY. PROGRAMS TO MAKE THE CONVERSION AND
TRANSFER ARE LISTED AS WELL AS SOME COROLLARY
BOOLEAN FUNCTIONS. (AUTHOR)

(U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A025 276 1/3 15/5
RAND CORP SANTA MONICA CALIF

A COMPUTER MODEL FOR ESTIMATING DEVELOPMENT
AND PROCUREMENT COSTS OF AIRCRAFT (DAPCA-
III).

(U)

MAR 76 94P BOPEN, H. E. , JR;
REPT. NO. R-1854-PR
CONTRACT: F44620-73-C-0011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPT. NO. R-761-PR-
ABRIDGED, AD-A012 091. SEE ALSO REPORT DATED FEB
76, AD-A022 086 AND REPORT DATED MAR 74, AD-780
636.

DESCRIPTORS: *MILITARY AIRCRAFT, *AIR FORCE
PROCUREMENT, *COST ESTIMATES, COMPUTER PROGRAMS,
FORTRAN, AIRFRAMES, AIRCRAFT ENGINES, AVIONICS,
MANUFACTURING, ENGINEERING, TURBOFAN ENGINES,
TURBOJET ENGINES, COST MODELS, COST ANALYSIS,
LOGISTICS MANAGEMENT

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
SENSITIVITY ANALYSIS, DAPCA3 COMPUTER PROGRAM

(U)

THE REPORT DESCRIBES AND LISTS AN UPDATED COMPUTER
MODEL (DAPCA-III) THAT COMPUTES FROM PARAMETRIC
RELATIONSHIPS THE DEVELOPMENT AND PROCUREMENT COSTS
OF TWO MAJOR FLYAWAY SUBSYSTEMS OF AN AIRCRAFT--
AIRFRAMES AND ENGINES. AVIONICS COSTS ARE INCLUDED
BUT ARE TREATED AS THROUGHPUTS. CUMULATIVE AVERAGE,
UNIT, AND TOTAL FLYAWAY COSTS ARE OBTAINED FOR UP TO
TEN SPECIFIED AIRCRAFT PRODUCTION QUANTITIES.
FLIGHT AND AVIONICS PROCUREMENTS ARE ALLOWED.
ALTHOUGH COSTS OF SPARE ENGINES ARE NOT CONSIDERED
TO BE FLYAWAY COSTS, THEY ARE CALCULATED IN THE MODEL
AS ADDITIONAL COSTS NOT INCLUDED IN THE TOTALS.
UNLESS OTHERWISE SPECIFIED, ALL COSTS ARE
CALCULATED IN 1975 DOLLARS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A026 213 17/9 9/2
AERODYNE RESEARCH INC BEDFORD MASS

PLUME ATTENUATED RADAR CROSS SECTION
CODE: USER'S MANUAL.

(U)

DESCRIPTIVE NOTE: SPECIAL TECHNICAL REPT.,
JUN 76 78P RICKMAN, J. ; TAIT, K. ; MANN,

D. ;

REPT. NO. ARI-RR-68
CONTRACT: F04611-75-C-0021
MONITOR: AFRPL TR-76-14

UNCLASSIFIED REPORT

DESCRIPTORS: *RADAR CROSS SECTIONS, *EXHAUST PLUMES,
*COMPUTER PROGRAMS, FORTRAN, REFRACTIVE INDEX,
DOPPLER EFFECT, ATTENUATION, SUBROUTINES

(U)

IDENTIFIERS: *ROCKET PLUMES, *PARCS COMPUTER
PROGRAM, FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE PARCS CODE CALCULATES THE COHERENT,
INCOHERENT, AND OVERDENSE SURFACE RADAR CROSS
SECTIONS OF A ROCKET PLUME. THE MODIFIED BORN
APPROXIMATION CALCULATION INCLUDES ATTENUATION, LOCAL
INDEX OF REFRACTION, DOPPLER SHIFT AND RANGE CELL
TRUNCATION. THE PROGRAM ACCEPTS PLUME DATA DIRECTLY
FROM THE AEROCHEM LAPP CODE, BUT MAY BE
INTERFACED WITH OTHER SOURCES OF PLUME DEFINITION.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A027 643 17/2 14/1 15/5 9/2
JOINT TACTICAL COMMUNICATIONS OFFICE FORT MONMOUTH N J

COST EFFECTIVENESS PROGRAM PLAN FOR JOINT
TACTICAL COMMUNICATIONS. VOLUME III. LIFE
CYCLE COSTING. APPENDIX F. COMPUTER
MODELS FOR LCC.

(U)

MAY 76 94P
REPT. NO. TTO-ORT-032-76A-V3-APF

UNCLASSIFIED REPORT

AVAILABILITY: MICROFICHE COPIES ONLY.
SUPPLEMENTARY NOTE: SEE ALSO AD-A023 223 AND AD-
A021 938.

DESCRIPTORS: *TACTICAL COMMUNICATIONS, *COST
EFFECTIVENESS, *LIFE CYCLE COSTS, COMPUTERIZED
SIMULATION, COMPUTER PROGRAMS, FORTRAN,
COMMUNICATION EQUIPMENT, LOGISTICS SUPPORT, JOINT
MILITARY ACTIVITIES

(U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE

(U)

THE APPENDIX DESCRIBES AND DOCUMENTS LIFE CYCLE
COSTING (LCC) COMPUTER MODELS AND PRESENTS SAMPLE
LIFE CYCLE COST CALCULATIONS USING THE MODELS. THE
AUTOMATED MODELS PRIMARILY CONCENTRATE ON O AND S
COSTS; HOWEVER, COMPLETE LIFE CYCLE COSTS ARE
COMPUTED USING AS INPUTS POINT ESTIMATES FOR R AND
D AND EQUIPMENT UNIT PRODUCTION COSTS. THE BASIC
TRI-TAC LCCM IS PRESENTED WITH THE PROGRAM AS
WRITTEN FOR A HEWLETT-PACKARD HP-9821A AND
MAKES REFERENCE TO THE SAME MODEL WHICH HAS BEEN
PROGRAMMED IN FORTRAN IV FOR USE ON THE
BURROUGH'S B5550 TIME SHARING SYSTEM.

THE USER'S GUIDE FOR THE FORTRAN IV VERSION
IS INCLUDED AND AN EXPANDED VERSION OF THE LCCM
PROGRAM WRITTEN FOR THE HP-9821A IS ALSO
PROVIDED.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A026 217 5/8 17/9 15/3
HUMAN ENGINEERING LAB ABERDEEN PROVING GROUND MD

REAL-TIME AIR DEFENSE RADAR DISPLAY:
OPERATOR CONSOLE SIMULATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 76 21P CAMDEN, RICHARD S. ;
REPT. NO. HEL-TM-23-76
PROJ: DA-1-Y-762716-AH-70

UNCLASSIFIED REPORT

DESCRIPTORS: *MAN MACHINE SYSTEMS, *COMPUTERIZED
SIMULATION, *DISPLAY SYSTEMS, *GUIDED MISSILE
DEFENSE SYSTEMS, REAL TIME, RADAR EQUIPMENT, AIR
DEFENSE, FORTRAN, CONSOLES, TRAINING (U)
IDENTIFIERS: RADARSCOPES, FORTRAN 4 PROGRAMMING
LANGUAGE, SAM-D AIR DEFENSE SYSTEMS (U)

THIS REPORT DESCRIBES THE COMPUTER PROGRAMS
DEVELOPED TO SIMULATE THE OPERATION OF THE OPERATOR-
DISPLAY CONSOLE OF THE SAM-D AIR DEFENSE
SYSTEM DESIGN AS OF 1 JUNE 1976. THESE
PROGRAMS PROVIDE THE CAPABILITY TO PRESENT REAL-TIME
TACTICAL SCENARIOS AND TO SIMULATE SYSTEM RESPONSES
TO OPERATOR ACTIONS. DATA COLLECTION AND ANALYSIS
CAPABILITY IS ALSO PROVIDED. THESE PROGRAMS ARE
BEING USED TO ASSESS THE MAN-MACHINE DISPLAY
INTERFACE OF THE SYSTEM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A028 979 9/2 1/3
IBM FEDERAL SYSTEMS DIV OWEGO N Y

PROGRAM DOCUMENTATION FOR THE RPV MISSION
CONTROL CENTER SYSTEM SIMULATION PROGRAM, (U)

MAY 76 103P WARTLUFT, D. L. ;
CONTRACT: F33615-75-C-5152
PROJ: AF-7184
TASK: 718414
MONITOR: AMRL, AMRL TR-76-47, HESS-76-6

UNCLASSIFIED REPORT

DESCRIPTORS: *REMOTELY PILOTED VEHICLES, *CONTROL
CENTERS, *MISSION PROFILES, INTERACTIVE GRAPHICS,
COMPUTERIZED SIMULATION, CONSOLES, FORTRAN, REAL
TIME, INFORMATION SYSTEMS, PERFORMANCE (HUMAN),
OPERATORS (PERSONNEL), DISPLAY SYSTEMS (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE,
*MISSION CONTROL CENTERS (U)

THE REMOTELY PILOTED VEHICLE MISSION
CONTROL SYSTEM (RMCS) SIMULATION PROGRAM IS
A REAL-TIME, INTERACTIVE, GRAPHICS PROGRAM WHICH
SIMULATES A HYPOTHETICAL MISSION CONTROL CENTER. IT
PROVIDES A MEANS FOR ANALYZING THE EFFECTS OF
NUMEROUS VARIABLES ON THE OPERATOR PERFORMANCE OF A
FIVE-MAN TEAM WHOSE TASK IS TO CONTROL UP TO 35
REMOTELY PILOTED VEHICLES (RPVS) THROUGH
THE ENROUTE, TERMINAL, AND RETURN PHASES OF A
SIMULATED STRIKE MISSION. THE ENROUTE AND RETURN
PHASES ARE PERFORMED BY FOUR OPERATORS SEATED AT
IBM 2250 DISPLAY UNITS. THE TERMINAL PHASE IS
SIMULATED BY A SINGLE OPERATOR WHO CONTROLS A
REMOTELY LOCATED TERRAIN TABLE WHICH IS INTERFACED TO
HIS CONTROL STATION THROUGH AN IBM 1827 DATA
CONTROL UNIT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A029 225 17/2 9/2
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

NETDEN: AN INTERACTIVE NETWORK DESIGN
GRAPHICS SIMULATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 76 SSP BOOZER, DRAYTON D. WILLIAMS,
RALPH K. :
REPT. NO. WES-MP-K-76-4

UNCLASSIFIED REPORT

DESCRIPTORS: *COMMUNICATIONS NETWORKS, *COMPUTER
GRAPHICS, *COMPUTER PROGRAMS, *DATA PROCESSING
TERMINALS, FORTRAN, TELECOMMUNICATION, COMPUTER
PROGRAM DOCUMENTATION, COMPUTERIZED SIMULATION,
MAPS, VISUAL AIDS, SUBROUTINES, DATA
PROCESSING

(U)

IDENTIFIERS: *NETDEN COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, COMPUTER SOFTWARE, H 6635
COMPUTERS, WATERWAYS EXPERIMENT STATION

(U)

NETDEN IS AN INTERACTIVE, NETWORK DESIGN, GRAPHICS
SIMULATION WHICH DISPLAYS ONE OF FIVE NETWORK DESIGNS
FOR A SET OF USER SPECIFIED SITES SUPERIMPOSED ON AN
OUTLINE OF THE CONTIGUOUS UNITED STATES. THE
AVAILABLE DESIGNS ARE MINIMUM MILEAGE STAR,
MINIMUM SPANNING TREE, MINIMUM MILEAGE
FIXED HUB(S) STAR, MINIMUM MILEAGE
RING, AND ARBITRARY NETWORK. NETDEN IS
WRITTEN IN FORTRAN 4 AND USES THE U. S.
MILITARY ACADEMY'S GRAPHICS COMPATIBILITY
SYSTEM GRAPHICS SOFTWARE. THIS DOCUMENT PROVIDES
BOTH AN OVERVIEW OF NETDEN'S CAPABILITY AS WELL AS
DETAILED USER INFORMATION. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A029 388 1/3 18/3 9/2
KAMAN AVIDYNE BURLINGTON MASS

NOVA-2 -- A DIGITAL COMPUTER PROGRAM FOR
ANALYZING NUCLEAR OVERPRESSURE EFFECTS ON
AIRCRAFT. PART 1. THEORY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 76 212P LEE, WILLIAM N. MENTE,
LAWRENCE J. ;
REPT. NO. KA-TR-128-PT-1
CONTRACT: F29601-75-C-0032
PROJ: AF-8809
TASK: 880903
MONITOR: AFWL TR-75-262-PT-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A029 389.

DESCRIPTORS: *AIRCRAFT, *NUCLEAR EXPLOSION DAMAGE,
*COMPUTER PROGRAMMING, OVERPRESSURE,
VULNERABILITY, BLAST WAVES, BLAST LOADS,
STRUCTURAL RESPONSE, FORTRAN
IDENTIFIERS: NOVA 2 COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

(U)

NOVA-2 (NUCLEAR OVERPRESSURE VULNERABILITY
ANALYSIS, VERSION 2) IS AN UPDATED VERSION OF
NOVA, A FORTRAN-4 DIGITAL COMPUTER PROGRAM FOR
CALCULATING THE RESPONSE OF INDIVIDUAL STRUCTURAL
ELEMENTS OF AIRCRAFT, SUCH AS STRINGERS, FRAMES AND
PANELS, EXPOSED TO THE TRANSIENT PRESSURE LOADING
ASSOCIATED WITH THE BLAST WAVE FROM A NUCLEAR
EXPLOSION. THE UPDATED VERSION EXTENDS THE
CAPABILITY OF NOVA TO ANALYZE RIB ELEMENTS, FRAMES
WITH VARIABLE CROSS SECTION, AND OFFERS A CHOICE OF
CLAMPED, SIMPLY SUPPORTED OR FREE EDGE BOUNDARY
CONDITIONS. FOR INELASTIC STRUCTURAL RESPONSE, A
MUCH IMPROVED ELASTIC-PLASTIC MODEL FOR MATERIAL
BEHAVIOR IS PROVIDED. ALSO ADDED TO NOVA IS THE
REFRA NEAR-GROUND REFLECTIONS MODEL FOR BLAST
WAVES. THE PROGRAM STILL PROVIDES THE OVERALL
CAPABILITY TO ANALYZE MULTILAYERED BEAM AND PANEL
ELEMENTS EXPOSED TO A STEADY-STATE SUBSONIC OR
SUPERSONIC AERODYNAMIC PRELOAD, FOLLOWED BY A DYNAMIC
BLAST WAVE. A CRITICAL SLANT RANGE IS AUTOMATICALLY
DETERMINED IN AN ITERATION WHERE DAMAGE CRITERIA
(SPECIFIED ON A PROBABILISTIC BASIS) ARE COMPARED
WITH THE STRUCTURAL RESPONSE.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A029 389 1/3 18/3 9/2
KAMAN AVIDYNE BURLINGTON MASS

NOVA-2 -- A DIGITAL COMPUTER PROGRAM FOR
ANALYZING NUCLEAR OVERPRESSURE EFFECTS ON
AIRCRAFT. PART 2. COMPUTER PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 76 155P LEE, WILLIAM N. IMENTE,
LAWRENCE J. ;
REPT. NO. KA-TR-128-PT-2
CONTRACT: F29601-75-C-0032
PROJ: AF-8807
TASK: A80903
MONITOR: AFWL TR-75-262-PT-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A029 388.

DESCRIPTORS: *AIRCRAFT, *NUCLEAR EXPLOSION DAMAGE,
*COMPUTER PROGRAMMING, OVERPRESSURE,
VULNERABILITY, BLAST WAVES, BLAST LOADS,
STRUCTURAL RESPONSE, FORTRAN

(U)

IDENTIFIERS: NOVA 2 COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE

(U)

NOVA-2 (NUCLEAR OVERPRESSURE VULNERABILITY
ANALYSIS, VERSION 2) IS AN UPDATED VERSION OF
NOVA, A FORTRAN-4 DIGITAL COMPUTER PROGRAM FOR
CALCULATING THE RESPONSE OF INDIVIDUAL STRUCTURAL
ELEMENTS OF AIRCRAFT, SUCH AS STRINGERS, FRAMES AND
PANELS, EXPOSED TO THE TRANSIENT PRESSURE LOADING
ASSOCIATED WITH THE BLAST WAVE FROM A NUCLEAR
EXPLOSION. THE UPDATED VERSION EXTENDS THE
CAPABILITY OF NOVA TO ANALYZE RIB ELEMENTS, FRAMES
WITH VARIABLE CROSS SECTION, AND OFFERS A CHOICE OF
CLAMPED, SIMPLY SUPPORTED OR FREE EDGE BOUNDARY
CONDITIONS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A030 463 9/5 9/2 9/1
COMPUTER SCIENCES CORP FALLS CHURCH VA

COMPUTER PROGRAM DESCRIPTION: PWRDEN - A
PROGRAM FOR THE EVALUATION OF POWER DENSITIES
IN THE NEAR FIELD OF ANTENNA APERTURES.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
SEP 76 25P MUNSON, WILLIAM B. ;
CONTRACT: DCA100-73-C-0008
PROJ: DCA04188
TASK: 411

UNCLASSIFIED REPORT

DESCRIPTORS: *ANTENNA APERTURES, *ANTENNA RADIATION
PATTERNS, *COMPUTER PROGRAMS, COMMUNICATION
SATELLITE TERMINALS, NEAR FIELD, FORTRAN
IDENTIFIERS: PWRDEN COMPUTER PROGRAM, FORTRAN 4
PROGRAMMING LANGUAGE, POWER DENSITY

(U)

(U)

THIS REPORT DESCRIBES THE MATHEMATICAL ANALYSIS AND
THE COMPUTER PROGRAM FOR THE PREDICTION OF POWER
DENSITIES IN THE VICINITY OF ANTENNA APERTURES.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A030 657 20/1 1/3 9/2
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

AIRCRAFT CONFIGURATION NOISE REDUCTION.
VOLUME III. COMPUTER PROGRAM SOURCE
LISTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 74-JUN 76,
JUN 76 29HP DUNN, D. G. ICECIL, D. J.

REPT. NO. DA-42849-3
CONTRACT: DDT-FA74WA-3497
MONITOR: FAA/RD 76/76-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A030
655.

DESCRIPTORS: *AIRCRAFT NOISE, *NOISE REDUCTION,
*JET ENGINE NOISE, *COMPUTER PROGRAMS, FORTRAN,
SUBROUTINES, COMPUTER PRINTOUTS, OVERLAYS,
COMPILERS, MAGNETIC TAPE, CONFIGURATIONS,
MACHINE CODING (U)

IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE (U)

THIS REPORT IS VOLUME 3 OF THE SERIES AND WAS
JOINTLY PREPARED BY THE NOISE TECHNOLOGY STAFF
OF THE BOEING COMMERCIAL AIRPLANE COMPANY AND
THE NOISE SYSTEMS GROUP OF BOEING COMPUTER
SERVICES, INC. THIS VOLUME CONTAINS THE SOURCE
CODE LISTING OF THE COMPUTER PROGRAMS FOR EVALUATING
AIRCRAFT CONFIGURATION NOISE REDUCTION AS
DEFINED IN THE ENGINEERING DOCUMENT, VOLUME 1. THE
USER'S GUIDE FOR THE PROGRAMS IS CONTAINED IN
APPENDIX A OF VOLUME 2. THE MATERIAL PRESENTED
HEREIN IS REFERENCE DATA FOR USE IN CONJUNCTION WITH
THE MATERIAL PRESENTED IN VOLUMES 1 AND 2. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A031 027 13/2 9/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS
RESEARCH AND DEVELOPMENT SERVICE

AIRPORT VICINITY AIR POLLUTION MODEL
COMPUTER SOURCE CODE.

(U)

DESCRIPTIVE NOTE: MODEL-SIMULATION,
DEC 75 IV TIGUE, JOHN :
MONITOR: FAA/DF 76/001

UNCLASSIFIED REPORT

DESCRIPTORS: *AIR POLLUTION, *AIRPORTS, COMPUTER
PROGRAMMING, COMPUTERIZED SIMULATION, FORTRAN,
MODELS, ENVIRONMENTAL PROTECTION, IMPACT,
COMMUNITIES, ASSESSMENT, AIRCRAFT, VEHICLES,
AIR QUALITY, SOURCES, PROGRAMMING LANGUAGES,
INVENTORY, EMISSION, DISPERSION RELATIONS,
METEOROLOGICAL DATA

(U)

IDENTIFIERS: *MODELS-SIMULATION, FORTRAN 4
PROGRAMMING LANGUAGE, AIRPORT MODELS

(U)

THE AIRPORT VICINITY AIR POLLUTION (AVAP)
MODEL IS A FORTRAN IV COMPUTER SOURCE PROGRAM.
THE AVAP MODEL IS A COMPREHENSIVE AIRPORT
SIMULATION MODEL WHICH CAN SERVE AS A TOOL IN
EVALUATING THE TOTAL AIR QUALITY IMPACT OF ALL
AIRPORT OPERATIONS ON THE AIRPORT VICINITY. THE
MODEL EVALUATES AIRCRAFT, AIRPORT NON-AIRCRAFT, AND
ENVIRONS SOURCES AND COMPUTES POLLUTION
CONCENTRATIONS DUE TO EACH. INPUT IS REQUIRED FOR
AIRPORT CONFIGURATION, AIRCRAFT AND GROUND VEHICLE
OPERATION, FIXED SOURCES, AND METEOROLOGY. ALSO
LISTED IS A COPY OF AN INPUT DATA SET FOR
WASHINGTON NATIONAL AIRPORT. ...SOFTWARE
DESCRIPTION: THE PROGRAM IS WRITTEN IN THE
FORTRAN IV PROGRAMMING LANGUAGE FOR IMPLEMENTATION
ON AN IBM 360/195 COMPUTER USING THE OS VERSION,
HASP LEVEL OPERATING SYSTEM. 340K BYTES OF CORE
STORAGE ARE REQUIRED TO OPERATE THE MODEL.

(U)

AIR-ARM

ENGINEERING

GE/EE/75-13
PERFORMANCE EVALUATION OF THE
CC450 DIGITAL MEMORY.
AD-AD19 810

GE/EE/75-17
DESIGN AND ANALYSIS OF AIR-TO-
AIR MISSILE USING DIGITAL CONTROL
THESES.
AD-AD19 853

GE/EE/75-10
VOTER/MONITOR DEVELOPMENT FOR A
DIGITAL FLIGHT CONTROL SYSTEM.
AD-AD19 856

GE/EE/76-4
A DIGITAL CONTROLLER FOR
HORIZONTAL ANGULAR MOTION OF THE
FJSRL SEISMIC ISOLATION PLATFORM.
AD-AD27 933

GE/EE/76J-7
REALIZATION OF A VOTER/MONITOR
FOR A DIGITAL FLIGHT CONTROL
SYSTEM.
AD-AD27 934

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH BOLLING AFB D C

AFOSR-68-1300
MODULARITY IN DESIGN: THE
APPLICATION OF SHIFT REGISTERS IN
SECONDARY STATE ASSIGNMENT.
AD- 670 550

AFOSR-68-2025
OPTIMAL NON-RESETTING DATA
RECONSTRUCTION.
AD- 676 607

AFOSR-68-2113
ROUND-OFF ERROR OF FLOATING-
POINT DIGITAL FILTERS.
AD- 677 323

AFOSR-69-1383TR
A STUDY OF DIGITAL ENCODING

UNCLASSIFIED

SYSTEMS.

AD- 688 606
AFOSR-69-1411TR
OPTIMUM TUNING OF A SLOW
SAMPLING DIGITAL CONTROL .60RITHM.
AD- 688 792

AFOSR-TR-72-1215
LONG-PERIOD SEISMOLOGICAL
RESEARCH PROGRAM.
AD- 744 130

AFOSR-TM-73-2073
SOME OBSERVATIONS ON
SEMICONDUCTOR TECHNOLOGY AND THE
ARCHITECTURE OF LARGE DIGITAL
MODULES.
AD- 770 634

AFOSR-TR-73-2074
DIGITAL HARDWARE FOR A MYRIAD
OPTICAL/DIGITAL COMPUTER INTERFACE.
AD- 770 636

AFOSR-TR-74-0115
A DIGITAL TECHNIQUE FOR
AUTOMATIC CORRECTION OF TELEVISION
IMAGE DISTORTION.
AD- 773 775

AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

AFWL-TR-74-170
DIGITAL CORRELATION TRACKER.
PHASE I. COMPUTER SIMULATION.
AD-8005 229

ARMY COMPUTER SYSTEMS COMMAND FORT BELVOIR VA

USACSC-ATS-75-01
COMBAT SERVICE SUPPORT SYSTEM
TIMING STUDY.
AD-AD13 870

ARMY ELECTRONICS COMMAND FORT MONMOUTH NJ

ECOM-0150-1

DIGITAL CONFERENCING UNITS.

AD- 914 476
ECOM-0223-2
SYNTHETIC APERTURE HELICOPTER
RADAR EXPERIMENTAL EVALUATION
PROGRAM.
AD- 861 558

ECOM-0256-1
FULLY AUTOMATED HIGH SPEED
MESSAGE ENTRY EQUIPMENT (AM/PET-6
(XE-2)).
AD- 855 597

ECOM-0344-F-71
DIGITAL INTERFACE CODE
CONVERTER.
AD- 908 524

ECOM-01472-F
APPLICATION OF RADAR TO
MEASUREMENT OF SURFACE
PRECIPITATION.
AD- 837 282

ECOM-3074
CONVERTER, RADIOSONDE DATA, CV-
857(XE-1)/GMD.
AD- 691 729

ECOM-3258
AN INFORMATION FEEDBACK
APPROACH APPLIED TO AN AMPLITUDE-
MODULATED DIGITAL LASER
COMMUNICATIONS SYSTEM.
AD- 710 946

ECOM-3314
AN INFORMATION FEEDBACK
APPROACH APPLIED TO POLARIZATION-
MODULATED LASER COMMUNICATION
SYSTEMS.
AD- 710 955

ECOM-5577
A DIGITAL DATA ACQUISITION
INTERFACE FOR THE SMS DIRECT
READOUT GROUND STATION - CONCEPT
AND PRELIMINARY DESIGN.
AD-AD22 317

0-2
UNCLASSIFIED /ZOM07

UNCLASSIFIED

ARM-COM

ARMY ENGINEER TOPOGRAPHIC LABS PORT
BELVOIR VA

ETL-0024
ANALOG GRAPHIC PROCESSING FOR 3-
D TERRAIN DISPLAYS, PROFILES, AND
ELEVATION LAYER TINTS.
AD-8017 493

ETL-0027
COMPUTING A LINE-OF-SIGHT USING
DIGITAL IMAGE MATCHING AND
ANALYTICAL PHOTOGRAMMETRY.
AD-8016 147

ETL-CR-74-6
DIGITAL MAPPING SYSTEM:
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